

MARCH 1955

# COMMERCIAL FERTILIZER

CONSOLIDATED  
WITH THE  
FERTILIZER  
GREEN  
BOOK

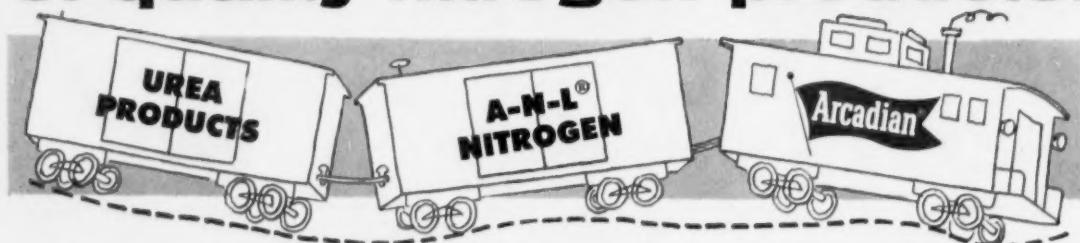
## Complete Nitrogen Service



is yours from this broad line



of quality nitrogen products!



If you want nitrogen, we can provide it in the exact forms you need for your fertilizer production and sales program. Try us for the

answers to your special nitrogen problems. We supply nitrogen plus experienced technical service that's available at no cost to customers.

### NITROGEN DIVISION

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Columbia 1, S. C. • Atlanta 3, Ga. • San Francisco 3, Cal. • Los Angeles 15, Cal.





Three of the A.A.C. Co's electrically-operated draglines at work at our phosphate mines in Central Florida. Bucket capacities range from 9½ to 17 cubic yards. The 17-yard draglines with their 175-foot booms each weigh more than a million and a half pounds and can move 35,000 tons of material in 24 hours. From these rock deposits flow a continuous stream of high quality phosphate rock, assuring a dependable source of supply of AA QUALITY phosphorus products, see list below.



## AA Quality...

for over 85 years a symbol of quality and reliability

### principal AA QUALITY products

All grades of Florida Pebble Phosphate Rock

AA QUALITY Ground Phosphate Rock

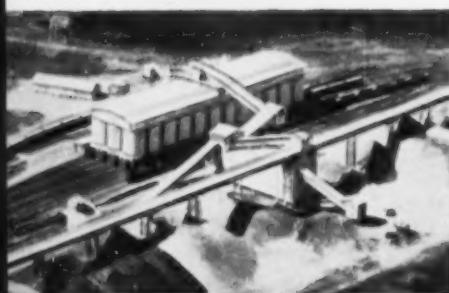
All grades of Complete Fertilizers      Superphosphate

Gelatin      Bone Products      Salt Cake      Ammonium Carbonate

Sulphuric Acid      Fluosilicates      Insecticides and Fungicides

Phosphoric Acid and Phosphates

Phosphorus and Compounds of Phosphorus



From the air—wet rock storage and drying plant, with dry rock storage silos in background. These silos, 29 in number, have a total capacity of 40,000 tons of dried rock. Under the silos are four runways where 40 railroad cars can be loaded at a time.

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GENERAL OFFICE: 50 CHURCH STREET, NEW YORK 7, N.Y.

30 FACTORIES AND SALES OFFICES, SERVING U.S., CANADA AND CUBA—ASSURE DEPENDABLE SERVICE

# HOW DOES YOUR ~~GARDEN~~ <sup>Business</sup> GROW?

Your business as a fertilizer manufacturer grows best when the farmer's crops grow best. And the growth of both is stimulated by the same outstanding Fertilizer ingredient . . . Organic Nitrogen.

There is no better source of Organic Nitrogen than SMIROW TANKAGE. It is 100% natural organic. It is consistently high in water insolubility and availability, testing approximately 90%. SMIROW TANKAGE is uniform both in color and texture.

The sure way to make your sales grow is to see that correct proportions of SMIROW TANKAGE insure the top quality that farmers seek in your goods.

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**TANKAGE**  
MAKES PLANTS GROW



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NORFOLK, VIRGINIA • GRANITE CITY, ILLINOIS

# COMMERCIAL FERTILIZER

and PLANT FOOD INDUSTRY

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ESTABLISHED 1910

March, 1955

Volume 90 No. 3

Published Monthly by

WALTER W. BROWN PUBLISHING CO., INC.

75 Third St. N. W., Atlanta, Georgia

Phone Atwood 4160

ERNEST H. ABERNETHY, President

BRUCE MORAN, Editor CLAY W. PENICK, Managing Editor

V. T. CRENSHAW, Business Manager

Subscription rates: United States, \$3.00 per year; 5 years, \$12.00. Foreign \$5.00 per year.

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Address all correspondence to Atlanta Publishing Offices, sending direct to: COMMERCIAL FERTILIZER and PLANT FOOD INDUSTRY, 75 Third St., N. W., Atlanta, Georgia.

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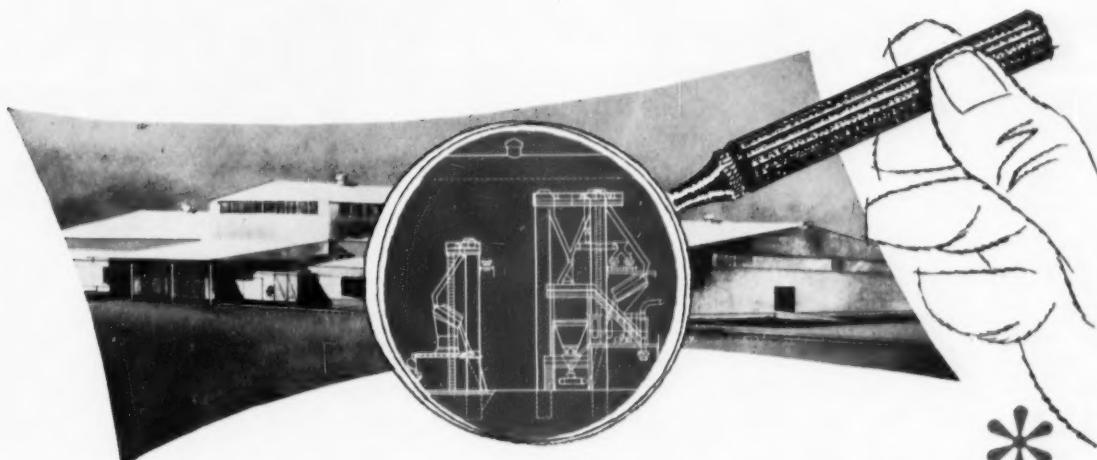
M. A. CALDWELL

Phone REPUBLIC 1-3050

COMMERCIAL FERTILIZER and PLANT FOOD INDUSTRY, entered as second class matter, October 12, 1910, at the post office at Atlanta, under the Act of March 3, 1879. Published monthly except semi-monthly in September, by Walter W. Brown Publishing Co., Inc., 75 Third St., N. W., Atlanta, Georgia.

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COMMERCIAL FERTILIZER



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### **FERTILIZER PLANT**

Many years of experience in the fertilizer industry have given the Harte Company valuable knowledge about the development and application of the fertilizer processes. Extensive study and research have made Harte engineers cognizant of the over-all picture of fertilizer plant design, realizing that certain fundamentals must be followed while specializing each plant. Chemical processes, machinery, mechanical operations, production facilities are carefully studied and adapted to fit the needs of each individual fertilizer plant.

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- Single Superphosphate Plants
- Warehouses
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- Storage Buildings
- Material Handling Systems
- Sulphuric Acid
- Phosphoric Acid

234 TECHWOOD DRIVE, N.W., ATLANTA • NEW YORK • HOUSTON • MEXICO, D.F. • HAVANA • WASHINGTON, D. C.

March, 1955



# JUST AROUND THE CORNER

By Vernon Mount

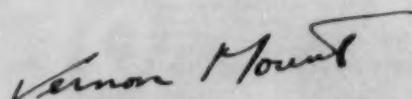
FIFTEEN MILLION PEOPLE is the horror estimate the Atomic Energy people and the Pentagon and the CD believe the Russians could kill before we could do anything about it. I cite this shocking total to impress on you the magnitude of another piece of arithmetic:

FIFTEEN MILLION WORKERS will be consolidated into one working unit when the AFL and the CIO join forces. While it is traditional that Labor does not vote as a bloc, it is also a known fact that the lobby-power of fifteen million organized voters is tremendous. They don't have to vote as a unit if their pressure in Washington is unified.

BUSINESS NEEDS UNITY to present a solid front to oppose whatever may come from this union of unions. Business does not have such unity. Businessmen do not even agree among themselves as to what line a common front should take and while their business associations are patriotic in spirit, each one is working for the best interests of its own group. That's natural--the man who pays the bill cracks the whip.

LET'S HOPE that some leader will spring up who can create a line of defense which will match in brain-power, money and unity the powerful new force we face.

Yours faithfully,



your eye tells you why

## *International's New Triple Superphosphate* **cuts mixing costs**

PLANT food manufacturers who already have switched to International's new Triple Superphosphate agree: its improved particle size and fine, virtually dust-free texture reduce mixing and handling costs. This uniformly fine texture cuts down the need to grind before mixing — assures faster, more complete ammoniation — promotes better granulation in high analysis formulations. Proper conditioning before shipment means less setting up en route — results in more

economical handling and higher product performance. International's new Triple Super provides these extra benefits because it's made by an improved process from the highest quality materials. It runs approximately 46% A. P. A. or higher — promotes better acceptance of your finished product — saves you time and money. It's available for immediate delivery to your plant. Write or wire the Phosphate Chemicals Division now for samples and quotations.



**INTERNATIONAL MINERALS & CHEMICAL CORPORATION**

*The Nation's Largest Producer of Phosphates*

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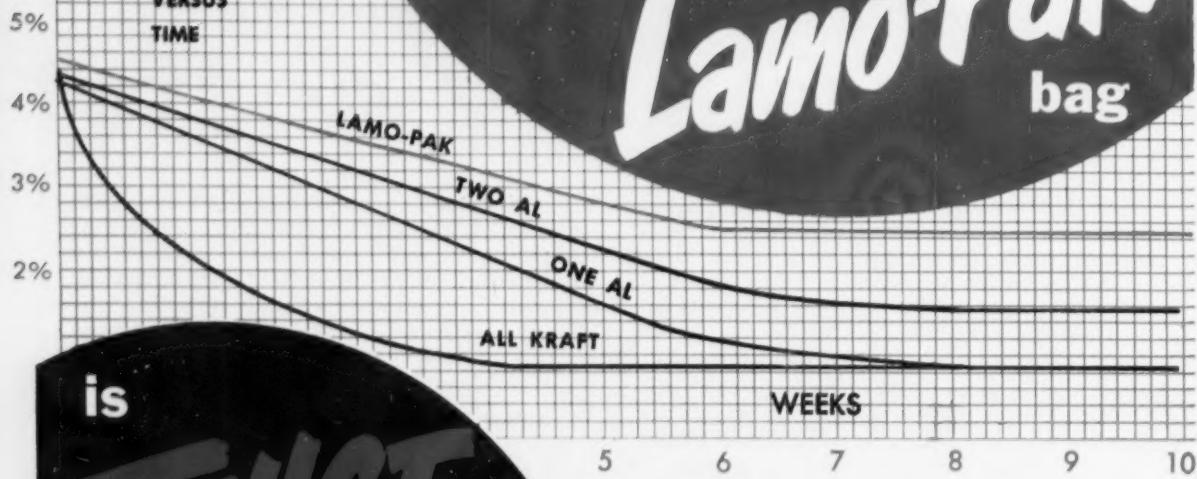
GRAPH  
PER CENT  
MOISTURE  
CONTENT  
VERSUS  
TIME

Tests prove...

the new A&S

Lamo-Pak

bag



is

**TWICE**

as effective  
a moisture  
barrier!



Photograph shows how product packaged with LAMO-PAK retains original moisture content and does not cake up. Note how caking of product due to excessive moisture-loses results from packaging with double-asphalt-laminated kraft.

and LAMO-PAK costs 10% less than double-asphalt-laminated kraft!

■ Impressive tests recently run by independent laboratory show that the new Arkell and Smiths LAMO-PAK moisture barrier sheet is up to 50% more effective in retaining moisture content—and equally effective with hygroscopic products in keeping moisture out!

LAMO-PAK has plus values over both a single ply and two plies of asphalt laminated paper!

LAMO-PAK — a newly developed laminate sandwiched between two sheets of lightweight kraft — will protect products negatively affected by moisture changes. LAMO-PAK has these plus advantages over asphalt laminated kraft:

- ★ economical!
- ★ less paper stiffness!
- ★ up to 50% greater moisture protection!
- ★ easier closure operation!

A & S — backed by close to a century of manufacturing "know-how" — inspires confidence as it spearheads the search for valuable new packaging materials. ARKELL & SMITHS means top-flight designing, quality printing, laboratory-controlled production . . . guaranteed every time!

**ARKELL and SMITHS**

For additional information on A & S Lamo-Pak, write to Arkell and Smiths, Packaging Division, Canajoharie,

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The greatest advance in tractor-shovel design in years — with more features — more digging power — more capacity — more performance than you ever thought possible in a tractor-shovel of this size.

The famous HA "PAYLOADER" has led the industry for over 15 years — this NEW 1955 Model HA is even more sensational. It has twice the digging power, lifting capacity and carrying capacity — has 16½% more bucket capacity — 18% more dumping height — and will increase output from 50 to 100%.

Before you buy any tractor-shovel, see this new Model HA — ask your dealer for a demonstration — find out what it can do to reduce your bulk material handling costs.

**NEW  
MODEL  
HA**

**Outstanding features:**

Powerful "break-out" digging action  
Upward rotation of the bucket combines with forward motion of machine in a powerful slicing action that gets full loads quickly, even from lumpy, sticky or heavy materials.

Bucket tip-back of 40 degrees when only 6 inches off the ground carries heaped loads *low* and *close* for maximum stability, balance and safety.

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Advance-design hydraulic system includes: sealed, pressurized hydraulic tank — no breathing of dirt and grit into hydraulic fluid; hydraulic accumulator prevents pressure shocks — gives easier, safer control.

Torque-converter drive and full-reversing transmission with two speed ranges insures fast moves in either direction — easier operation and control — more production.

Improved steering. Ball-bearing screw-and-nut type steering with tapered roller bearing bell crank and oversize ball joints — easy-acting, readily-adjusted, low in maintenance.

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Name

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Title

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Company

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Street or Box No.

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City State



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ESTON CHEMICALS DIVISION • 3100 East 26th Street, Los Angeles 23, California  
Plants • Trona and Los Angeles, California

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switch to  
**KRAFT-lok®  
bags!**

89.6% of our customers  
who used L. C. Sleeves and other  
internal sleeve type bags  
have switched to KRAFT-lok  
— without any increase in cost.

The integral construction of this  
exclusive Kraft Bag feature solves  
all those tricky closure problems  
peculiar to bagging granular material.

KRAFT-lok also gives you  
the extra extension, the extra  
protection, and the extra production  
you simply cannot get  
in conventional type valve bags.

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obligation... fill out coupon below,  
attach to your Company letterhead,  
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COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

## 10 good reasons

why packers of  
granulated fertilizer  
prefer KRAFT-lok Bags:

- 1 Eliminates snagging on  
packer tubes.
- 2 More flexible valve area  
improves bag handling.
- 3 Prevents torn sleeve particles  
from contaminating material.
- 4 Speeds up filling operations by  
more efficient "venting."
- 5 Slows up spilling in filling.
- 6 Reduces leakage in closing.
- 7 Actually seals material  
inside bag automatically.
- 8 Minimizes sifting in handling.
- 9 Makes a cleaner, more satisfactory  
package in all ways.
- 10 Saves dollars all around.

\* 89.6%  
have  
already  
switched!



1 Responsibility  
2 Integrated Plants  
3 Generations of Bag  
Experience

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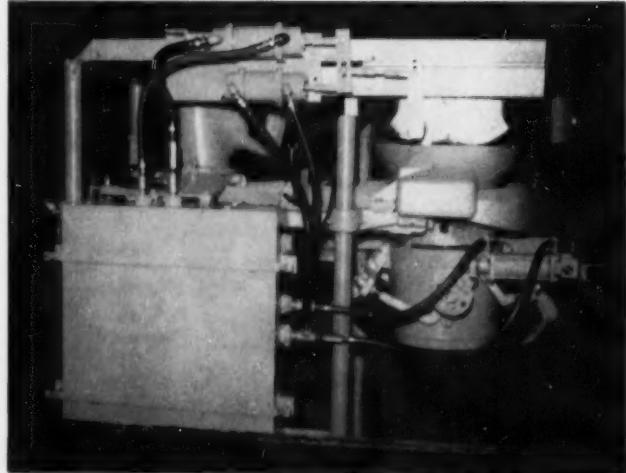


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Model AJ 155

for attachment to  
Exact Weight Bagging Scales

- Converts your manual bagging operation into a fast, accurate unit that clamps, weighs and releases bags automatically.
- No structural changes necessary for installation. The unit is attached to your present scale without any disruption of your operation.
- One unit will give more production and more accurate weights than is possible with two hand operated scales.



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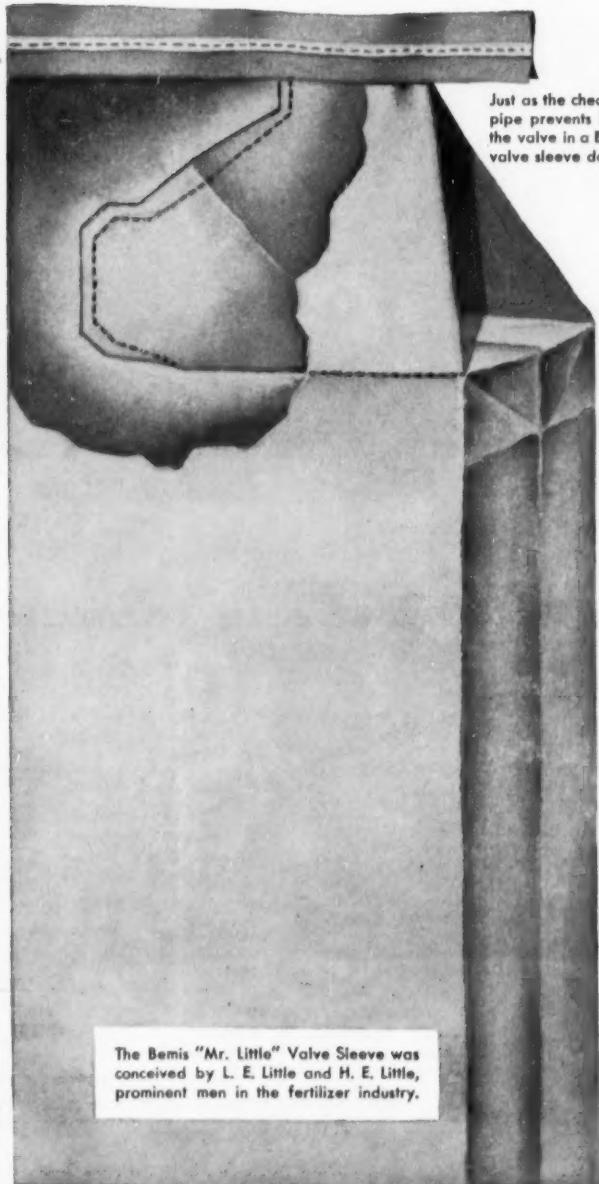
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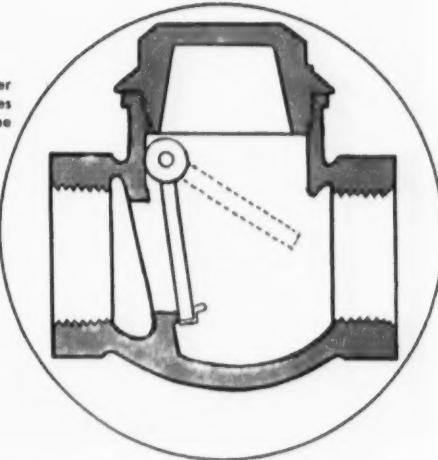
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# The most revolutionary Multiwall Bag development in years!

## the NEW Bemis "Mr. Little" Valve Bag\*



Just as the check valve in a water pipe prevents back flow, so does the valve in a Bemis Multiwall. The valve sleeve does the trick.



Maximum Sifting Protection—Creases in the valve sleeve—a new principle—give a faster-acting, tighter closure particularly with troublesome granular or pelletized products. It *really seals* in the bag contents.

Valve Corner Moisture Protection—Since bag contents do not get into the valve pocket, "wick" action that draws moisture into the bag is avoided.

Cleaner Packing—Handling—Shipping—No more spilled fertilizer on packing room floors and conveyors; no more dirty cars received by your customers.

Ask your Bemis Man for the *complete* details. He'll gladly show and demonstrate the revolutionary new "Mr. Little" Valve Bag. Write or call him today.

# Bemis



General Offices—St. Louis 2, Mo.  
Sales Offices in Principal Cities

\*Pat. Applied for



# life to crops; death to insects

You can give new life and added vigor to your fruits or vegetables — and kill harmful insects at the same time — by adding GRACE UREA PRILLS to your regular pesticide sprays.

It's the simplest and quickest way to give your crops the supplemental nitrogen they need — over and above what is supplied to them in mixed fertilizers.

**GRACE UREA PRILLS' fertilizing power** — an unsurpassed 45% nitrogen — is full strength and quickly absorbed by foliage. You get top efficiency, because roots absorb any spray dropping to the ground. And GRACE UREA PRILLS are compatible with any commonly used spray material. This fertilizer is safe to handle, dissolves readily and does not corrode or clog spray equipment.

Suggested amounts for mixing with pest-control sprays are given in the chart at the right. Less concentrated solutions may be used, depending on the frequency of spraying and the specific nitrogen needs of your particular crop and soil.



**GRACE CHEMICAL COMPANY**

HANOVER SQUARE, NEW YORK 4, N. Y.

Atlanta, Ga.

Chicago, Ill.

Memphis, Tenn.

Pounds GRACE UREA PRILLS suggested per 100 gals. Spray



VEGETABLES	LBS.
Tomatoes, cucumbers, cabbage, cauliflower, celery, lettuce, peppers, snap-beans, sweet corn, strawberries	4-5
Sweet potatoes	5-10
Potatoes	15
Carrots, parsley	20
FRUITS	
Apples	3-5
Cherries	5
Plums and Prunes	10

USE GRACE UREA PRILLS FOR ALL TYPES OF CROPS • IN IRRIGATION WATER • AS A TOP-DRESSING OR SIDE-DRESSING • WHEREVER NITROGEN IS NEEDED

AVAILABLE IN 80 LB. MULTIWALL SACKS  
FROM YOUR LOCAL DISTRIBUTOR

more and more  
granulated  
fertilizer manufacturers  
are turning to  
**LOUISVILLE** **rotary dryers**  
**rotary coolers**  
to speed production...reduce drying costs



Installations are individually engineered for your problems. Results can be pre-determined in our pilot plant. We'll be glad to show you how the fertilizer industry has found a new way to efficient and profitable drying.

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Each part is guaranteed to give 100% service in the corrosive atmosphere of Nitrogen Solution.

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SEND FOR YOUR BOOKLET, "The Installation and Operation of a Nitrogen Solution System." to P. O. Box 4628, Atlanta 2, Ga.

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FOR **Multiwall** CALL **A** **lbemarle**

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EASTERN SALES OFFICE: NEW YORK CITY • SOUTHERN SALES OFFICE: BALTIMORE, MD. • MIDWEST SALES OFFICE: CHICAGO, ILLINOIS

## CFA Offers New 16 mm Film

The California Fertilizer Association announces that a new 16 mm. color film is available for exhibition to interested organizations and agencies. Entitled "California Grows with Fertilizer" the 800 foot film runs for thirteen minutes. It is an institutional film, factual in content, and does not advertise in any way specific fertilizer concerns or their branded products.

The picture was produced jointly by the California Fertilizer Association and The National Fertilizer Association. Its purpose is to relate, in picture and words, the story of commercial fertilizer from raw material to consumer. It tells of California's recent phenomenal growth, and the part which the use of fertilizers is playing in feeding and clothing the expanding population. Of particular interest to farmers is a scene which relates in detail the large increase possible in net cash return to the growers of a principal crop resulting from proper fertilizer use.

Color prints of the film are available at no charge for showing to farm and home garden groups, agricultural or horticultural classes, civic groups, etc. They may be obtained for specified dates, subject to prior commitment, upon application to the Department of Visual Instruction, University Extension, University of California, Berkeley or Los Angeles; the State Bureau of Vocational Agricultural Education, California State Polytechnic College, San Luis Obispo; or the California Fertilizer Association, 475 Huntington Drive, San Marino.

Black and white prints are available for television showing through the Association office.

## S. C. Fertilizer Meeting June 2

The Annual South Carolina Fertilizer Meeting will be held at the Sandhill Experiment Station, Branch of Clemson Agricultural College, RFD, Columbia, South Carolina (14 miles north of Columbia on U. S. Highway No. 1) on Thursday, June

## *It Seems to Me*

by BRUCE MORAN



The Census of business and of manufacture is important to you, though it may not seem so on the surface. It supplies vital data on which your suppliers, for example, can base their production estimates. And when they can base these accurately they can save you money. It serves other equally important purposes.

The Government is trying to economize by making this Census by mail. If you answer it promptly, you save your Government money and it is your money, you know.

So when your forms come in, don't toss them in a corner because they are an irritating bit of paper work. Fill them out, and mail them in . . . and do it right away.

Remember, the Census is confidential. Nobody can go and look at your figures. And the published figures are arranged so that if there are only two concerns in a certain field in a certain county—those figures are not shown except as part of the state totals. And if there are only two in a state, they are shown only in the regional or national figures.

2, 1955. Fertilizer manufacturers, dealers, salesmen, and other interested agricultural workers are cordially invited to attend. The morning will be devoted to touring the experiment station on trucks. Immediately after lunch, which will be served at the station, timely talks will be made by key agricultural workers. During the afternoon, the group will be shown through the new animal diagnostic laboratory which is operated by the U. S. De-

partment of Agriculture, Animal Disease Eradication Branch and the Clemson Agricultural College, Livestock Sanitary Department. This laboratory is located at the Sandhill Experiment Station.

Attendance at similar meetings has been between 375 and 450, a great portion of whom have been fertilizer dealers. The dealers play a most important part in molding and carrying forward a progressive fertilizer program.

## INDUSTRY CALENDAR

Date	Organization	Place	City
Mar. 30-Apr. 2	ACS, Div. Ag. & Food Chem.		Cincinnati, Ohio
June 13-15	NFA-APFC	Greenbrier	White Sulphur Spgs.
June 28-30	Pacific N.W. Conference	Boise Hotel	Boise, Idaho
July 14-15	Southwest Grade Hearings	Buccaneer Hotel	Galveston, Texas
Oct. 17-18	Fertilizer Safety Section	La Salle Hotel	Chicago, Ill.

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# MORE THAN 500 ATTEND 7th ANNUAL MIDWEST SOIL MEETING

Agronomists and fertilizer manufacturers from 13 midwestern states came together for their seventh annual joint meeting in Chicago February 17-18 under sponsorship of the ever-active Middle West Soil Improvement Committee.

This year's conference had grown in size and in stature to the extent of extending sessions over a two-day period rather than the single-day meeting held heretofore. More than 500 had registered by closing time, and attendance at the Thursday afternoon-Friday morning talks was exceptionally good.

The program was loaded with talent from the world of agronomy,

and the agronomists were loaded with suggestions and data from recent experiments—and from discussions they had held among themselves for the two days preceding the meeting, while assembled in Chicago as guests of MWSIC.

Here are summaries of talks by those on the program, each preceded by a subhead indicating the state from which the speaker hails—

## WISCONSIN

Poor nutrition is often the real cause of alfalfa crop failures blamed on severe winter weather, wet soil, inferior seed or competition from grasses, according to O. J. Attoe, University of Wisconsin agronomist,

who told the group alfalfa stands can frequently survive unfavorable conditions and stay productive for a "surprising" number of years when the soil is properly limed and fed phosphate and potash fertilizer.

Attoe reported that land once thought too poor to grow alfalfa is now producing money-making hay crops for the seventh year in a row, due to a soil-building program that included lime and high-potash fertilizer.

Alfalfa yields up to 4 tons per acre have been harvested in a seven-year Wisconsin test, on land built up by good soil fertility practices, he said. Yields on unlimed and unfertilized fields averaged only about 1 1/2 tons per acre. Attoe said that the soil-building program had returned \$4 to \$5 for every dollar invested in fertilizer.

"From all indications," he said, "the fertilized alfalfa stands will remain productive for some time to come, by top-dressing with a high potash fertilizer such as 0-10-30."

## MINNESOTA

Fertilizer added in the fall can help produce just as high corn yields on medium to heavy soils as the same amount of plant food broadcast and plowed under in the spring, John M. MacGregor, University of Minnesota agronomist reported at the meeting.

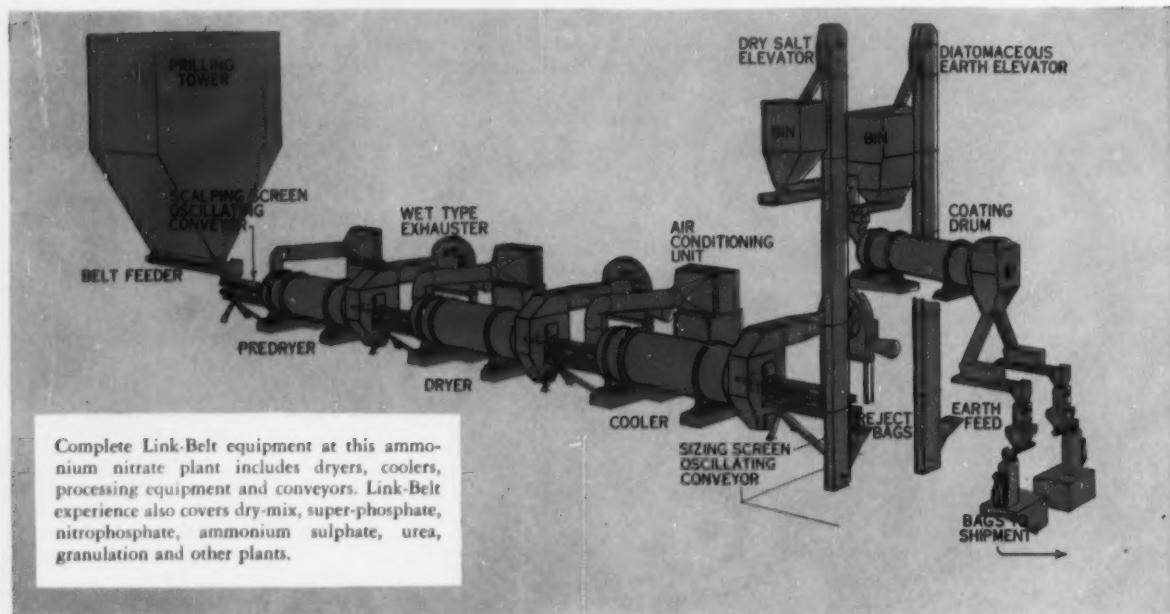
Fall fertilization should become increasingly popular with farmers, MacGregor said, because it is more convenient than crowding the job into a short spring rush period. Roads are in better condition for hauling fertilizer in the fall and fields provide a firmer footing for machinery, he said. Another advantage is that farmers often get substantial discounts for taking fall delivery of fertilizer.

MacGregor reported that complete nitrogen, phosphate and potash fertilizer broadcast on plowed land in the fall in Minnesota tests was equal-

## ← → Key To Commercial Fertilizer Staff Pictures

1. Harold S. Vorhes of Virginia-Carolina Chemical Corp., president of Middle West Soil Improvement Committee, welcomes group to meeting. 2. Floyd W. Smith of Kansas State College, chairman of the agronomists, launches the program. 3. Z. H. Beers, MWSIC secretary, adds his word of greeting to the big crowd. 4. E. T. Baughman, Federal Reserve Bank, and C. E. "Chuck" Trunkey of MWSIC. 5. William C. Mansor of Baugh & Sons and John Sanders, Mississippi River Chemical Div. 6. Jim Devlin, Southwest Potash Corp., and G. O. McMullin, Northwest Coop. Mills. 7. George Kingsbury, Kingsbury & Co., and E. J. Buhner, Buhner Fertilizer Co. 8. Dick Braun of Farm Journal and Howard Lathrop, Nitrogen Div., Allied Chemical & Dye Corp. 9. W. W. Worzella and L. F. Pehr of South Dakota State College, and Frank H. Calvin and H. C. Zuch of Farmers Union Central Exchange. 10. Edwin Aylward, Aylward Fertilizer Co.; K. D. Jacob, USDA; M. F. Gribbins, duPont Co.; and Richard S. Maness, Aylward Fertilizer Co. 11. George Barclay and Mrs. Z. H. Beers of the MWSIC staff take time out from their picture-snapping to re-load the camera. 12. Sid Rydell, Coronet Phosphate Co.; V. W. Venable, Cornland Plant Foods; and B. W. Guess, Swift & Co. 13. H. E. Wood, Farmers Fertilizer Co., and William H. Morris, Chemical Packaging Corp. 14. Frank W. Rodgers and William Bone of Monsanto Chemical Co. with L. D. Cook and Lyman Shaw of Illinois Farm Supply Co. 15. Cash Cahill, Rath Packing Co.; Stan Smith, Darling & Co., and Lewis Eymann, North-Ag Chemical Supply Co. 16. R. L. Wright and Harold H. Douthit of International Minerals & Chemical Corp., and Murray McJunkin, U. S. Steel Corp. 17. C. E. Littlejohn, U. S. Potash Co., and Kirk Waggoner, Swift & Co. 18. A. J. Dartus, Virginia-Carolina Chemical Corp.; Willis Stout, The Kentucky Farmer; and C. R. Shillings, Federal Chemical Co. 19. George Wash, Phillips Chemical Co.; Claude Byrd, Spencer Chemical Co.; and Kaspar Peter, Phillips Chemical Co. 20. J. E. Tuning and Claude Byrd of Spencer Chemical Co. 21. Warren Huff, Duval Sulphur & Potash Co., and W. E. Neuman, Ohio Farm & Grain Assn. 22. George H. Alber, Marion Plant Life Fertilizer Co.; Sheldon Carnes, Arkell & Smiths; and B. P. Redman, Jr., Farmers Fertilizer Co. 23. Wallace Inman and R. P. Crossley of Capper's Farmer with Len Gopp, International Minerals & Chemical Corp. 24. Dallas Cantwell, Spencer Chemical Co., and C. H. Godfrey, Virginia-Carolina Chemical Corp. 25. George E. Smith, Univ. of Missouri, and Paul J. Talley, Lion Oil Co. 26. George Johnson, Successful Farming; W. P. Martin, Univ. of Minnesota; and G. W. Volk, Ohio State Univ. 27. Morris Newman, Price Chemical Co.; Harold S. Vorhes, Virginia-Carolina Chemical Corp.; and Charles Martin, Miami Fertilizer Co. 28. Don L. Peterson, Ashkum Fertilizer Co.; Charlie Martin, International Minerals & Chemical Corp.; and Howard Peterson, Lincoln Service & Supply. 29. John Foster, Wilson & Geo. Meyer Co., and R. E. Bennett, Farm Fertilizers. 30. J. R. "Dugan" Taylor, Grand River Chemical Div., Deere & Co., and Bill Dible, International Minerals & Chemical Corp. 31. Donald L. McCune, USDA-Purdue Univ., and S. A. Barber, Purdue Univ. 32. Kaspar Peter, Phillips Chemical Co.; Pierce Vandercook, Armour Fertilizer Works (retired); and T. E. Camp, Jr., Southwest Potash Corp. 33. Jeff Stewart, Federal Chemical Co., and Ove F. Jensen, duPont Co. 34. Philip R. Smith, Buhner Fertilizer Co.; R. P. Thomas, International Minerals & Chemical Corp.; and William Garman, Grand River Chemical Div., Deere & Co. 35. J. W. Galland, National Soybean Crop Improvement Council, and Clem Bellion, H. J. Baker & Bro. 36. Myron Keim of Virginia-Carolina Chemical Corp. and Arthur Smith, Olin Mathieson Chemical Corp. 37. "Council of Chiefs" (headress compliments of IMC) as Dow Chemical's Bill Allen, president of National Agricultural Chemicals Assn., and Russell Coleman, NFA president, talk over association work. 38. John Zigler of International Minerals & Chemical Corp. and W. S. Tyler, Longhorn Brokerage & Engineering Co., seem to be talking seriously despite the festive headgear. 39. Melvin Nelson, City National Bank of Kankakee; H. H. "Bert" Tucker, Standard Oil Co. of Ohio; R. P. Thomas, International Minerals & Chemical Corp.; and Philip R. Smith, Buhner Fertilizer Co.

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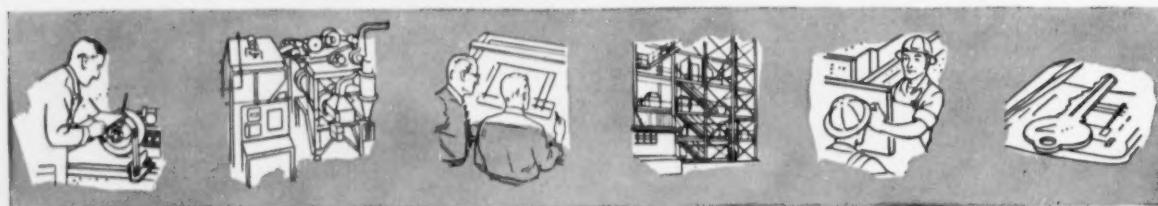
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10-61

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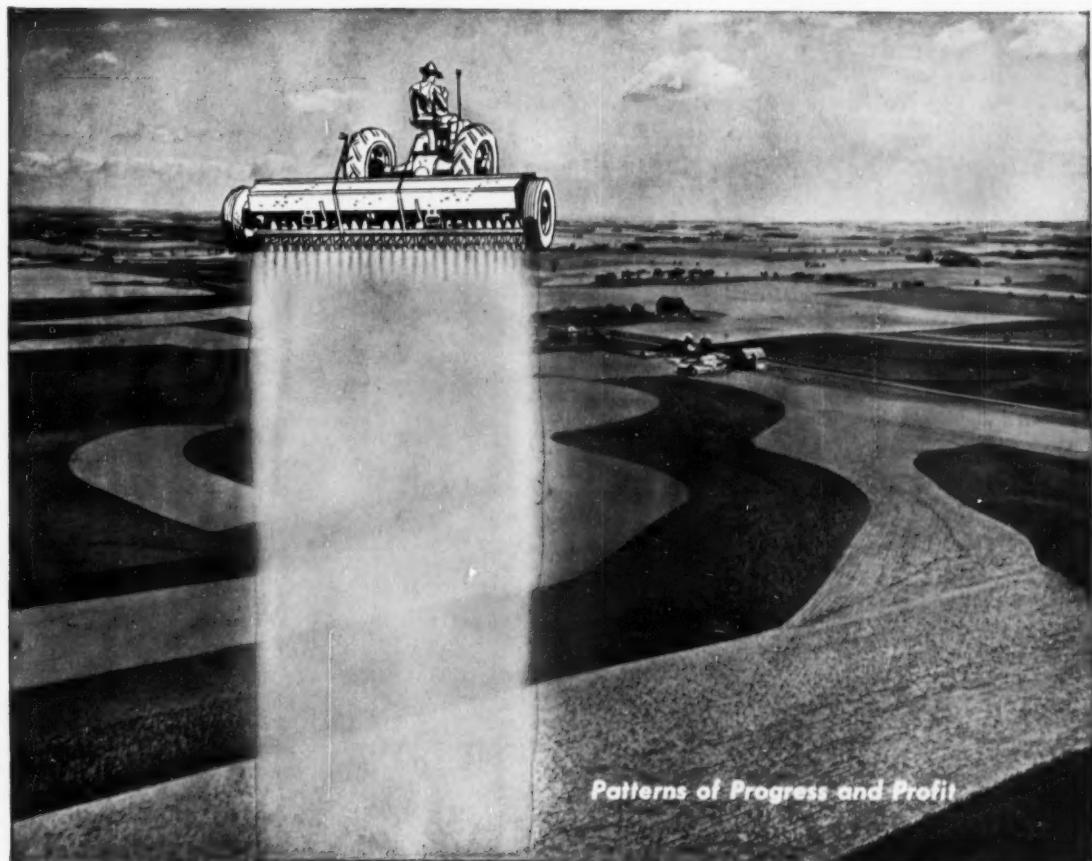
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ly as effective for increasing corn yields as that applied the following spring. There was little or no loss of plant nutrients during the winter.

Tests in other Midwestern states indicate that fall-added fertilizer gives just as good results as plant food applied in the spring, MacGregor said. Advocates of fall fertilization usually suggest that a starter fertilizer be used at corn planting time in the spring.

## KEY TO PICTURES



**MWSIC photos:** 1. Agronomists featured on program were (left to right)—E. R. Duncan, Iowa State College; John MacGregor, Univ. of Minnesota; R. L. Cook, Michigan State College; R. A. Olson, Univ. of Nebraska; John Falloon, Univ. of Missouri; Floyd Smith, Kansas State College; M. B. Russell, Univ. of Illinois; S. A. Barber, Purdue Univ.; J. R. Webb, Iowa State College; O. J. Attoe, Univ. of Wisconsin. Not included in picture: H. J. Mederski, Ohio State Univ., and E. B. Norum, N. Dakota Ag. College. 2. Phil Stocker and Chet Johnson of Land O' Lakes. 3. E. R. Duncan, Iowa State College, and J. D. MacGregor, Univ. of Minnesota. 4. Richard B. Maness, Aylward Fertilizer Co.; E. R. Graham, Univ. of Missouri; and R. W. Scanlan, Phillips Petroleum Co. 5. Lowell Hodam, State Bank of Bement, Ill.; Joe Foster, Bement vocational ag. teacher; and A. J. Ohlrogge, Purdue Univ. 6. Russell Coleman, NPA president; O. J. Attoe, Univ. of Wisconsin; and L. F. Puhr, S. Dakota State College. 7. C. E. Workman, Virginia-Carolina Chemical Corp.; Tracy Adcock and Kirk Waggoner, Swift & Co. 8. A. H. Bowers of Swift & Co. and N. P. Martin, Univ. of Minnesota. 9. A. R. Halvorsen and Donald M'Cune of Purdue Univ.; William A. Seay, Univ. of Kentucky; and S. A. Barber, Purdue Univ. 10. Garth Volk, Ohio State Univ.; H. L. Garrard, American Potash Inst.; H. J. Mederski, Ohio State Univ. 11. Robert G. Fitzgerald and P. T. Smith of Smith-Douglass Co. 12. S. C. Smith, Darling & Co.; J. W. Hicks and E. T. Poterton of International Minerals & Chemical Corp. 13. W. H. Worzella, L. F. Puhr and Merle Switzer of S. Dakota State College. 14. E. M. Jones, Nitrogen Div., Allied Chemical & Dye Corp.; J. R. Taylor, Jr., Grand River Chemical Div., Deere & Co.; Tom O. Rogers, also Nitrogen Div. 15. Paul M. Burson, Univ. of Minnesota, and L. G. Monthey, American Society of Agronomy. 16. Phillip R. Smith, Buhner Fertilizer Co., and John Abbott, Ashkum Fertilizer Co. 17. Marshall A. Smith, Smith Agricultural Chemical Co., and R. P. Koos, Kenosha, Wisc. 18. C. H. Fluty, Farm Belt Fertilizer Co., and S. Ray White, Spencer Chemical Co. 19. B. L. Mitchelson, Spencer Chemical Co., and R. P. Thomas, International Minerals & Chemical Corp. 20. W. T. Corl of Darling & Co. and S. L. Clement, TVA. 21. N. S. Koos, Kenosha, Wisc., and W. A. Webster, Quaker Oats Co. 22. John Falloon, Univ. of Missouri; F. A. Houk, Federal Chemical Co.; and R. L. Cook, Michigan State College. 23. R. V. Olson, Kansas State College; A. J. Ohlrogge, Purdue Univ.; and M. B. Russell, Univ. of Illinois. 24. Harold Douthit, International Minerals & Chemical Corp.; Garth Volk, Ohio State Univ.; and Harry L. Cook, Ohio Farm Bureau Coop. Assn. 25. Roy E. Jury, Arkell & Smiths; Ted Nelson, Union Bag & Paper Corp.; Gene Van Deren, Blue Grass Fertilizer Co.; and Bob Linderman, International Minerals & Chemical Corp.

The Minnesota tests showed also that corn yields were just as high when nitrogen fertilizer was added in the fall as when it was applied in the spring. MacGregor said that "there is no conclusive field proof that late fall applications of nitrate nitrogen to typical Corn Belt soils will result in serious loss of the applied nitrogen over the winter."

MacGregor said that the biggest corn yield increase from nitrogen fertilizer comes from side-dressing it a month to three months after planting rather than by adding it before plowing. However, increasing the amount of nitrogen added can insure an adequate supply all season long for the corn crop.

Placement of fertilizer for corn is not as important as is sometimes considered, MacGregor said, provided the fertilizer is not in direct contact with the seed. Damage to corn seedlings from starter fertilizer, he said, is usually due to improper adjustment or badly worn parts of the corn planter's fertilizer attachment, allowing the fertilizer to be deposited in contact with the seed.

## IOWA

Fertilizer with high water-soluble phosphates will give more bushels of corn and oats per acre than those with low water-solubility, when the fertilizer is used in the hill for corn or in the row for oats. However, when the phosphate is broadcast and plowed under or disced in, the advantage of high water-solubility disappears almost entirely.

That was the statement of John R. Webb, Iowa State College research agronomist in his report at the annual joint meeting.

Webb reported that when fertilizer was used in the row, corn yield increases were nearly three times greater in Iowa tests with phosphates high in water solubility than when the solubility was lowest.

Early season growth was much faster, too, with corn plants 10.6 inches higher on July 1 on fields fertilized with phosphate high in water solubility, than on unfertilized plots. Corn on soil treated with low water soluble phosphate was only

1.8 inches higher than on unfertilized fields.

Webb said that oat yields per acre were about 40 per cent greater when high water soluble phosphate was drilled in bands with the seed, but stated that when the phosphate was broadcast and plowed under, there was almost no difference in yield between high water soluble phosphate and low water soluble phosphate.

## MICHIGAN

Adding nitrogen to the fertilizer helped double alfalfa yields when the legume was seeded with wheat in the fall, Richard Swenson, Michigan State College soils specialist advised the agronomists and industry representatives.

Swenson said that 20 pounds of nitrogen per acre was as effective as a 40 pound application in increasing the alfalfa yield, citing Michigan experiments which indicate that a high soil nutrient supply is advisable for both the alfalfa and the companion crop of oats or wheat. Wheat yields were increased up to 9.3 bushels per acre and oats 15 bushels, when 40 pounds of nitrogen per acre was added to the fertilizer, he reported.

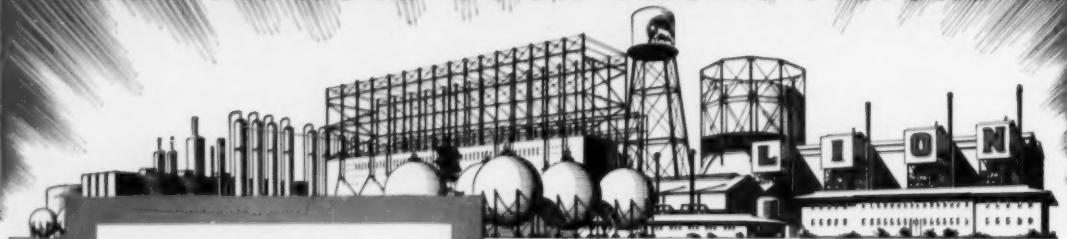
"Many farmers do not like to apply very much fertilizer, especially nitrogen, when seeding alfalfa with either wheat or oats," he said, "because they believe that when the companion crop has a low level of nitrogen, it will not grow rapidly and offer competition to the new seeding.

"However, such a nutrient level would put the alfalfa seedlings to a severe disadvantage. The alfalfa seed is very small. There are not enough nutrients in the seed to feed the germinating plant very long. Soon the new seedling must depend on the soil for its plant nutrients."

"If the soil's nutrients supply is low, then the alfalfa's growth will be restricted to just that of the companion crop."

Swenson said that alfalfa yields were highest when seeded alone in August or June, or with oats in April. The next highest yields came from seeding alone in April, and seeding after oats in August.

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## MISSOURI

Forage production can be doubled and the protein content increased more than 2 1/2 times on poor upland pasture when lime and fertilizer are added announced John Falloon, University of Missouri soils specialist, who said that fertilized pasture yielded 5,960 pounds of forage per acre, compared with only 2,516 pounds on untreated soil in a 1954 demonstration in Boone County, Missouri. This was a 1 1/2 ton

### KEY TO PICTURES



**MWSIC** photos: 1. A. J. Schuler and Richard Fancher of Welcome Agricultural Chemical Co., and C. E. Workman of Virginia-Carolina Chemical Corp. 2. Grace Koos Anderson, N. S. Koos & Son Co.; J. H. Spalding, U. S. Steel Co.; and Kaspar Peter, Phillips Petroleum Co. 3. C. R. Sparks and Edward J. Buhner Fertilizer Co. 4. Robert Bryant, Victor Chemical Works; H. J. Coleman, Standard Oil Co. of Ohio; Ray Steenhausen, Victor Chemical Works; and H. H. Tucker, Standard Oil Co. of Ohio. 5. John Mark, Iowa Farm Supply Co.; R. A. Garn, Farm Bureau Coop. Assn.; E. Dean Keller, Nitrogen Div., Allied Chemical & Dye Corp.; and John Foster, Wilson & Geo. Meyer Co. 6. M. K. Miller, Tennessee Corp., and E. N. Jones, Nitrogen Div., Allied Chemical & Dye Corp. 7. Jim Menn, Kickapoo Fertilizer Co.; W. W. Venable, Cornland Plant Foods; and G. O. Powell, F. S. Royster Guano Co. 8. R. P. Cloud, Spencer Plant Foods; Al Reineberg (partially hidden) Fulton Bag & Cotton Mills; and Richard E. Bennett, Farm Fertilizers. 9. Edward D. Kingsbury, Kingsbury & Co.; B. B. Mainord, Farm Bureau Service Co. of Missouri; and H. W. Goewey, Minnesota Farm Bureau Service Co. 10. Charles F. Martin, Miami Fertilizer Co.; W. M. Newman, Price Chemical Co.; and Charles E. Trunkey, MWSIC staff. 11. J. R. Sargent, J. Walter Harding and J. D. Stewart, Jr., of Federal Chemical Co. 12. Ernest Harper and Howard Lathrop of Nitrogen Division, Allied Chemical & Dye Corp.; G. N. Hoffer, Olin Mathieson Chemical Corp.; and George Scarseth, American Farm Research. 13. Z. H. Beers, MWSIC staff; George N. Hoffer, Olin Mathieson Chemical Corp.; Vincent Sauchelli, Davison Chemical Co.; George Barclay, MWSIC staff. 14. Kirk Wagenseiler, Swift & Co.; Henry K. Lange, Lange Bros.; John D. Ziegler, International Minerals & Chemical Corp.; and G. K. Walton, Darling & Co. 15. Frank Nelson of Rath Packing Co. and Noel McDonald, Ashcraft-Wilkinson Co. 16. Dave Weatherly, D. M. Weatherly Co., and Cash Cahill, Rath Packing Co. 17. C. E. Trunkey, MWSIC; George E. Smith, Univ. of Missouri; and Ray L. Pavlak, Wisconsin Farmco Service Coop. 18. Malcolm McVickar, NFA staff; Grant C. Davis, Pacific Coast Borax Co.; and Leo F. Orth, Minnesota Farm Bureau Service Co. 19. W. T. Thompson, Blue Valley Fertilizer Co.; E. B. Norum, N. Dakota Ag. College; and W. P. Glaspey, Blue Valley Fertilizer Co. 20. Ed Kolb, American Potash & Chemical Corp.; Marshall A. Smith, Smith Agricultural Chemical Co.; B. W. Guess, Swift & Co.; and John Foster, Wilson & Geo. Meyer Co. 21. Garth Volk, Ohio State Univ., and Arthur R. Mullin, Indiana Farm Bureau Coop. 22. Harry R. Smith, Smith Agricultural Chemical Co.; E. M. Jones, Nitrogen Div., Allied Chemical & Dye Corp.; H. W. Lucks and W. F. Farley of Smith Agricultural Chemical Co. 23. Omar Sanders, Hydro-Carbon Products, and Claude Byrd, Spencer Chemical Co. 24. Earl Elliott and S. L. Clement of TVA, and H. F. Miller, Univ. of Kentucky.

increase per acre.

The protein yield was 540 pounds per acre on fertilized pasture and 196.5 pounds on the untreated field. The protein content of each was 9.1 and 7.8 per cent, respectively.

Falloon reported that Missouri farmers are now using about 12 times more fertilizer to boost crop yields than in 1942, and are getting more crop-building power in every ton of fertilizer they buy than ever before. The nutrient content of mixed fertilizer in Missouri has increased from 21.1 per cent in 1942 to 31.4 at present, he said.

## ILLINOIS

Boosting per-acre corn yields depends to a considerable extent on how much the individual farm operator wants to increase his yields, declared M. B. Russell, head of the University of Illinois' agronomy department in his talk.

"There is an old saying that 'the eye of the master fattens the cattle,'" Russell recalled. "That applies to crops, too. Some farm operators who see their land only when they put in the crop and again when they harvest it are in poor position to know their land and to farm it to its greatest potential."

Russell said that the National Soils Work Group estimates the corn yields in the Middle West could average 85 bushels per acre, instead of the present 50 bushel average, if farmers used improved soil management practices and had the benefit of favorable growing conditions.

"Average yields imply that some will be far above it and some far under," he said. "With an 85-bushel average for the Corn Belt, some farmers should be cribbing 115 to 125 bushels per acre every year, while other farmers on poorer soils would be able to make only 75 bushels per acre."

"Averages will vary from year to year. For a period of years the average may be pushed up or down by favorable or unfavorable weather."

Russell said crop yields are limited by the distribution of rainfall—how well it is spread out during any given year—by the efficiency of the individual farm operator; by the

timeliness of cropping operations; by the soil's characteristics; its depth or shallowness; by the soil's physical condition—whether it is tight or loose and well-drained.

Lack of nutrients is probably the greatest limiting factor in crop production, Russell said. The farmer, however, can control the nutrient supply, he said.

"To get the maximum number of bushels a given crop variety will produce, the soil must first be able to deliver all the nutrients that the crop will need to produce those yields," he continued. "Even more important, the soil must be able to meet the peak demand of the crops. During the six weeks from the knee-high to the tasseling stage, the corn crop uses up 85 per cent of the total nutrients needed by the crop for the entire season."

Russell said that in some instances the crop's genetic ability to produce is actually limiting yields, even though we may not have the economical commercial nitrogen available to supply all the nutrients needed by a crop.

"In corn for instance, some varieties are more adapted to higher rates of planting than others," he concluded. "Some will continue to go up in yield as the rate of planting is increased. Others will level off in their yield potentials, and still others will reach a peak and come back down. As the rate of planting exceeds a certain density, some hybrids will tend to have increased numbers of barren stalks."

## NFA

Corn and wheat surpluses can be reduced without cutting the farmer's net income by producing "maximum yields at minimum costs on the fewest acres possible," Russell Coleman, NFA president, told the soils specialists and fertilizer manufacturers, tossing aside his prepared speech in favor of a brief comment with a voice hoarsened by a sore throat.

Coleman said the answer to crop surplus problems is to "increase farm production efficiency through the more widespread application of improved farming practices," long



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## PRESIDENT'S WELCOME TO MIDWEST SOIL AUDIENCE

Once again the Middle West Soil Improvement Committee is happy to welcome the college agronomists, members of the fertilizer industry and guests to this annual joint meeting.

Year by year these meetings have grown in importance. The attendance and interest have steadily increased. So much so, in fact, that last year it was necessary to seek larger quarters for the sessions.

And this year, for the first time, the meeting has been expanded to two days, instead of one, so there will be plenty of time for all the reports and discussions.

We look forward very much to these meetings. They offer benefits both to the research and extension men and the industry representatives.

As fertilizer industry men, we get first-hand information on the latest research on soils, crops and more efficient fertilizer use by the colleges and experiment stations.

As agronomists, you have the opportunity to exchange ideas with research men from each of the other Corn Belt states and to discuss plans for closer cooperation in regional research.

These meetings have another important value, too. They help both the fertilizer industry and the soils men to develop a clearer understanding of the problems of each. This helps make possible a more orderly progress in the work of all interests in promoting better soils management and more efficient crops production by farmers.

This meeting is in the hands of the agronomists. You developed the program and planned its details. We are here to learn.

The program this year is particularly noteworthy. I know you are anxious for it to begin, so I will conclude by welcoming you again and thanking you all for being here.

Harold S. Vorhes

been advocated by the Land-Grant Colleges, he said has more recently found strong support from Secretary of Agriculture Benson.

The most effective tool to help farmers accomplish this objective, Coleman continued, is the proper use of commercial fertilizer.

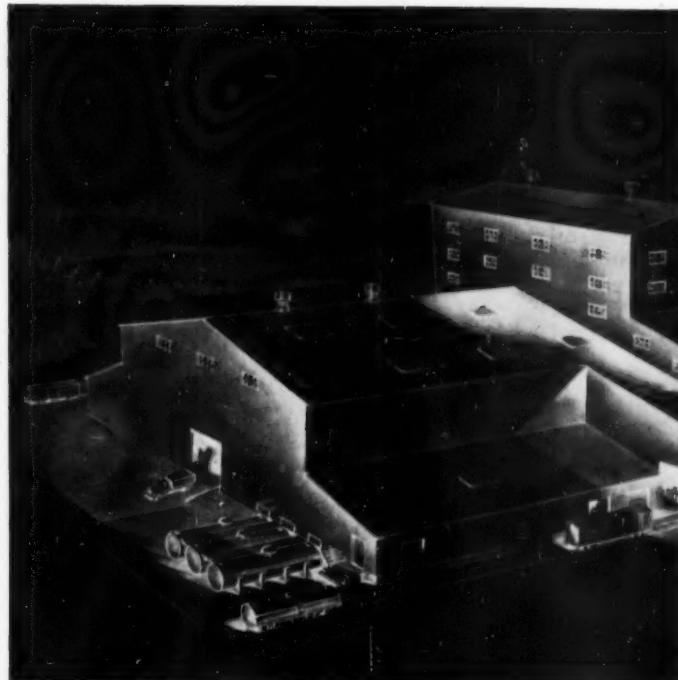
The cost of producing a bushel of corn could be reduced from \$1 at present to 80 cents, if all Midwestern farmers followed the practices recommended by the experiment stations, he said, giving the farmer a net return of 70 cents per bushel, instead of 50 cents at present, increasing yields from an average of 43 to 75 bushels per acre.

Farmers could make more profit from 2 billion bushels of corn than they now realize from the Midwest's

present crop of 2 1/2 billion bushels, Coleman said, and this 2 billion bushel crop could be produced on 26.7 million acres a little less than half the acreage now planted to corn. Accomplishing this objective would of course require the use of much larger quantities of plant food.

Instead of using an average of 19 pounds of plant food per acre on corn as at present, it would be necessary to use 259 pounds. Thus even though the corn acreage could be cut in half, almost seven times as much plant food would be required.

Coleman pointed out that the Midwest's total wheat production could be reduced from the current 557 million bushels to 445 million bushels without cutting net income,



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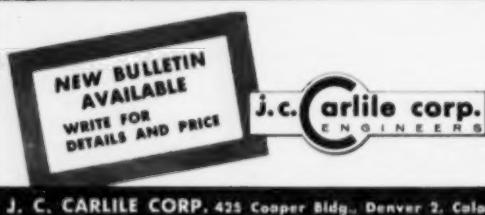
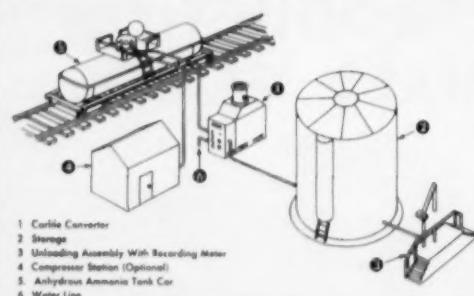
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if farmers followed recommendations of their Land-Grant Colleges.

Wheat yields per acre could be increased from an average of 18 bushels to 30 bushels. The overall wheat acreage could be reduced more than 50 per cent, without profit loss to farmers.

"Present research from the nation's agricultural experiment stations indicates that the cost of producing wheat could be cut from \$1.40 to \$1.28 per bushel," he said. "Instead of realizing 40 cents net profit per bushel on wheat—with wheat valued at \$1.80 per bushel—Midwest farmers would actually realize 52 cents per bushel. Total profit would be as great as wheat farmers now make."

## MICHIGAN

"Once over tillage" that fits a seed bed in one operation can save farmers at least \$3 per acre in preparing their land for corn, declared R. L. Cook, head of Michigan State College's agronomy department. In the "once over" operation, a light tillage unit such as a plow packer, a rotary hoe, easy tiller or some other smoothing implement is hitched behind a conventional moldboard plow. With conventional tillage, farmers usually go over their fields after plowing twice with a tandem disk and twice with a spring tooth harrow.

Cook reported a saving of "13 horsepower hours" per acre with a plow packer attached to the plow, which "accomplished all the tillage necessary for producing maximum corn yields." Weed control also was considerably easier with "once over tillage," he said.

"Once over tillage" not only saves time, money and machinery, but it saves the soil, too, Cook surmised. Too much tillage and running heavy machinery over the field in seedbed preparation packs down the soil, and can result in loss of organic matter, plugging of soil pores, poor aeration, inefficient use of plant nutrients and low yields.

Corn needs a loose soil, and "tilage is only necessary to make ac-

curate planting possible and to destroy existing vegetation," he added.

He listed these advantages of the kind of seedbed which nine years of Michigan tillage research have shown to be ideal for corn: 1—quick, uniform germination; 2—less loss of moisture by evaporation; 3—roots penetrate readily into loose soil between rows; 4—rapid water intake; 5—less erosion; 6—less weed competition, because when the corn grows rapidly the weeds do not have a chance; 7—deeper rooting, less damage from summer drought; 8—better aeration and higher moisture holding capacity because loose soil contains more pore space; 9—savings of more than \$3 in production costs; 10—higher yields.

Savings in tillage costs, needless to remind, give the farmer more available cash with which he can increase his fertilizer applications toward the goal set by experiment stations.

## OHIO

Fertilizer's "carry-over" power helps boost yields of all crops in the rotation when plant food is added to any one of them, H. J. Mederski, Ohio State University agronomist, revealed in his talk on "Efficient Corn Production in the Eastern Corn Belt."

He said corn yields were increased 15 bushels per acre, oats eight bushels, wheat 10 bushels, and hay 760 pounds per acre in Ohio tests, when 500 pounds of 4-16-4 fertilizer was broadcast for corn in the rotation.

When the same amount of fertilizer was added to a new legume-grass seeding after wheat, yields of corn were boosted 12 bushels, oats 7 bushels, wheat 6 bushels and hay, 1,800 pounds per acre. Applying the fertilizer on wheat increased corn yields by seven bushels, oats six bushels, wheat 19 bushels and hay by 1,300 pounds per acre.

Mederski reported that when corn is in the rotation, the soil's fertility level can be increased or maintained by adding the bulk of the fertilizer at a convenient place in the rota-

tion, such as the meadow crop, and using only limited amounts of plant food in the row at corn planting time.

The key to top corn yields, he said, is high soil fertility, adequate moisture, good cropping and cultural practices and a stalk population sufficient to make use of the available nutrients and moisture in the soil.

Corn yields go up when the stalk population is boosted on high fertility soils, he continued. Increasing the stalk population on low fertility soil, however, has little effect on the yields.

He reported corn yields averaged 108 bushels per acre when the planting rate was 6 seeds per 42 inches of row on fertile soil, compared with only 33 bushels on low fertility soil.

## IOWA

Corn yields can be tremendously increased when fertilizer is teamed with other improved soil and crop management practices, said E. R. Duncan, Iowa State College agronomist.

"Fertilizer can't do this job alone," he added, "but in our enthusiasm we often neglect to mention this fact, or assume that our farmers are keeping pace with the other essential soil and crop management practices."

Duncan listed the following crop and soil management practices as essentially important in building high yields: 1—suiting the corn plant population to the soil's fertility level; 2—using suitable varieties of corn; 3—timeliness of field operations; 4—weed and insect control; 5—erosion control and drainage; 6—suitable crop rotations and the return of crop residues to the soil.

"Research and experience have shown us that suitable fertilization can increase yields from 20 bushels per acre to 70 or 80 bushels per acre when weather conditions are favorable and subsoil moisture is satisfactory," he said.

"Research also has shown that yield levels of 20 bushels per acre

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may be the upper limit where there is neither rainfall nor subsoil moisture, regardless of fertilizer applications."

Duncan pointed out that weather hazards can often cut yields in the Western Corn Belt, in spite of the fertilizer applied to the crop.

## INDIANA

Farmers who can produce wheat efficiently are less dependent upon a high price to make a fair profit margin. They make their profit because of lower production costs, S. A. Barber, Purdue University agronomist stated.

Speaking on "Efficient Wheat Production in the Soft Wheat Area", he said the development of higher yielding wheat varieties by state agricultural experiment stations, increased rates of fertilization and improved management practices have all teamed up to increase yields per acre, cut costs and boost profits.

"The improved varieties of wheat are increasing the rates of fertilization we can use for maximum profit," Barber said. "They have higher potential top yields and respond to our improved management practices."

He reported that two new Indiana wheat varieties—Knox and Saline—have yielded from 8.2 to 12.4 more bushels per acre than an older variety, Trumbull, at a high soil fertility level. The new varieties are more efficient in producing grain per unit of plant weight he added.

"Soil fertility and fertilizer use are very important in efficient wheat production," Barber said. "One of the first nutrients to be emphasized was phosphorus; yield increases from phosphate fertilizer are dependent on the level of available phosphorus in the soil. For most efficient production, we should fertilize as required to reach the point of diminishing returns."

Fertilizing the soil for future crops can be a profitable practice, he said, pointing out that "we may wish to build up the soil fertility level in the long term fertilization program.

"We have the alternative on low fertility soils either of putting on large row applications of fertilizer at seeding time, or of building up with soil with broadcast applications previously and using smaller amounts in the row."

He reported that wheat yields on soils of low fertility were boosted from 20.4 to 38.2 bushels per acre in Indiana tests when 30 pounds of superphosphate was added in the row. Stepping up the application to 75 pounds increased the yield to 44.2 bushels.

Plots with a low soil test level that had been built up to high and very high test levels by broadcasting fertilizer three years previously yielded 40 and 44 bushels per acre respectively without adding any fertilizer in the row. Adding 30 pounds of phosphate in the row increased the yield to 44 bushels on the high test soil, but gave no increase on the very high test plot.

Barber reported that top-dressing wheat in the spring with nitrogen gave yield increases up to 12.5 bushels in Michigan tests, while other states have obtained similar results.

Soil testing, he concluded, is extremely important in determining the fertilizer requirements for most efficient wheat production.

## NEBRASKA

Fertilized wheat grows better than unfertilized wheat during drought periods in the Great Plains area, R. A. Olson, University of Nebraska agronomist declared, stating that stronger root growth of winter wheat on fertile soil enables the plant to make better use of deep-lying subsoil moisture.

He said, however, that fertilizer use will not help overcome the effects of drought where no subsoil moisture supply exists, or when a dry year begins with a deficiency of moisture storage.

Winter wheat yields have been increased as much as 13 bushels per acre in Eastern Nebraska tests, when nitrogen and phosphate fertilizer were used, Olson reported.

Net profits from the use of fertilizer averaged up to \$16 per acre, he said.

He estimated that the use of nitrogen fertilizer gave a return of \$3 for every dollar invested in plant food. Fall applications of nitrogen, he said, have proved as effective as spring applications in increasing yields. Spring applications however, have been more effective in boosting the grain's protein content.

Olson said that in getting high yields of winter wheat, "quality seed of adapted varieties, properly treated, must be sown by proper methods and rates at a proper time."

## NORTH DAKOTA

Profitable wheat yields in the Northwest's spring wheat belt (North Dakota, South Dakota, Montana and Minnesota) depend on winning the constant battle against plant diseases and insects and providing the needed water and nutrients for the crop, reported E. B. Norum, North Dakota Agricultural College agronomist.

He said that the choice of the right variety and the work of the plant breeders means many millions of dollars yearly to the wheat farmers of this area.

"Wheat yields vary almost directly with the amount of moisture available during the growing season," Norum said. "Since most of the wheat is grown in a rain-deficient area, conservation of moisture is particularly important."

"Growing a crop one year and leaving the field fallow the next, is popular in the Western part of this area. Using fallow one year in three and alternating wheat with corn and other intertilled crops is more common in the eastern part of the areas."

Norum explained that many farmers figure fallow's chief benefit lies in conserving moisture. Fallow, however, stockpiles some nitrogen in the soil, he said. So actually the use of nitrogen fertilizer can substitute in part for fallow at least to the extent of providing increased nitrogen for the use of the crop the following year.

**STATE AGRONOMISTS' SUGGESTED MINIMUM FERTILIZER GRADE NEEDS OF THE MIDDLE WEST FOR THE YEAR BEGINNING JULY 1, 1955\***

Straight materials supplying nitrogen, phosphate and potash are also needed. Minor and secondary elements as materials and in mixed fertilizers are required in localized areas.

RATIO	ILL.	IND.	IOWA	KAN.	KY.	MICH.	MINN.	MO.	NEBR.	N. DAK.	OHIO	S. DAK.	WISC.
0:1:3	0-10-30	0-10-30	0-10-30			0- 9-27	0- 9-27	0-10-30			0-10-30		0-10-30
0:1:2	0-10-20	0-10-20			0-10-20	0-10-20							
0:1:1	0-20-20	0-20-20	0-20-20	0-20-20	0-12-12	0-20-20	0-20-20	0-20-20			0-14-14		0-20-20
0:2:1	0-20-10	0-20-10	0-20-10			0-20-10	0-20-10			0-20-10	0-20-10		0-20-10
1:6:3						3-18- 9		4-24-12		4-24-12		4-24-12	
1:4:4	4-16-16	4-16-16	4-16-16			3-12-12	3-12-12	4-16-16	4-16-16		3-12-12		4-16-16
1:4:2	5-20-10	4-16- 8	5-20-10			4-16- 8	5-20-10			5-20-10	4-16- 8		
1:4:1						5-20- 5							
1:3:9	3- 9-27	3- 9-27				3- 9-27		3- 9-27				3- 9-27	
1:3:6	3- 9-18	3- 9-18	3- 9-18			3- 9-18	3- 9-18				3- 9-18	3- 9-18	
1:3:2					4-12- 8								
1:3:1					8-24- 8			8-24- 8	8-24- 8				
1:2:3						5-10-15				5-10-15			
1:2:2						5-10-10	6-12-12	8-16-16	6-12-12		6-12-12		
1:2:1						10-20-10	10-20-10	12-24-12	10-20-10	10-20-10		10-20-10	
1:1:3						6- 6-18					6- 6-18		
1:1:1	10-10-10	10-10-10	10-10-10	10-10-10	10-10-10	10-10-10	10-10-10	10-10-10	10-10-10	10-10-10		10-10-10	
1:4:0	8-32- 0	8-32- 0	6-24- 0	8-32- 0			8-32- 0		8-32- 0	8-32- 0		8-32- 0	
1:3:0			10-30- 0	10-30- 0			10-30- 0	13-39- 0	13-39- 0	10-30- 0		10-30- 0	
1:2:0	10-20- 0	10-20- 0	10-20- 0	10-20- 0			10-20- 0	10-20- 0	10-20- 0	10-20- 0		10-20- 0	
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2:1:1		14- 7- 7				14- 7- 7				14- 7- 7			
2:2:1									12-12- 6				

\* The production of higher grades of the suggested ratios is encouraged. A regional minimum concentration of 27 units is suggested excepting Kentucky which suggests a 24 unit minimum.

He estimates that the use of nitrogen in wheat production in this area could reduce the use of fallow from every other year to one year in three; and where it is now used one year in three, to one year in four.

Fallow is helpful in combatting weeds—particularly wild oats, Norgum said.

Nitrogen alone has not been particularly beneficial on non-fallow land, nor does phosphate alone give very great response, he continued but when nitrogen and phosphate are combined in the fertilizers for wheat, yields have been effectively increased on non-fallow land.

"Phosphated wheat will generally ripen three to five days ahead of non-fertilized wheat," he said. "Early growth is stimulated. Larger root systems, improved stooling and rapid growth help fertilized wheat stay ahead of the weeds and increase its chances of producing higher yields."

On fallow land the use of nitrogen with phosphate has shown little increase because the use of the fallow stores extra nitrogen in the soil, he added, but no non-fallow nitrogen-phosphate combinations are needed to build the highest yields.

## V-C SELLS CONTROL OF BLACK LEAF TO DIAMOND BLACK LEAF CO.

Formation of a new corporation to take over the manufacture and marketing of Black Leaf brand agricultural chemicals and pest control products was announced jointly by Joseph A. Howell, President of Virginia-Carolina Chemical Corp., Richmond, and John A. Sargent, President of Diamond Alkali Co., Cleveland.

Major interest in the new firm, to be known as Diamond Black Leaf Company, will be held by Diamond Alkali. It will also be managed by Diamond, with Virginia-Carolina holding a minority interest in the new corporation.

Under the agreement, Diamond will acquire Virginia-Carolina's interest in the new firm during the next five years. Formal details of implementing the plan, now being worked out by both companies, are expected to be completed by March 1, when Diamond Black Leaf Company goes into operation.

In absorbing the Black Leaf Prod-

ucts Division of Virginia-Carolina Chemical Corporation, the new firm will continue to manufacture and market the complete, well-known Black Leaf line of agricultural and pest control chemicals for use by both commercial growers and home gardeners.

The line encompasses some 200 different, special-purpose sprays, dusts and herbicides distributed throughout the United States and in many other countries, Messrs. Howell and Sargent said.

Present plans call for continuing headquarters in Richmond, home of Virginia-Carolina Chemical Corporation's Black Leaf Products Division for the past several years.

The new firm takes over plants established at Richmond; Louisville, Kentucky; Montgomery, Alabama, and Waco, Texas.

Production, sales and office personnel presently engaged in Black Leaf operations total approximately 300 people. It is expected most of

these will be offered the opportunity of employment with the new organization.

Loren P. Scoville and Dr. Bruce D. Gleissner, general manager and assistant general manager respectively of Diamond's Chlorinated Products Division, have been named to the posts of president and vice president of Diamond Black Leaf Company. They will also continue in their present positions with Diamond.

Other officers of the new organization are: Donald S. Carmichael, Secretary; Arthur W. Crossley, Treasurer, and William A. Crichtley, Controller, all of whom continue to serve Diamond Alkali Company in these same positions at its national headquarters in Cleveland.

With the formation of this new concern, Diamond Alkali, a major manufacturer of the newer synthetic organic insecticides and weed killers, will now market Diamond materials in finished, ready-to-use form, Mr. Sargent said. He also explained that Diamond will simultaneously continue to make and sell its chlorinated intermediates to other pesticide producers for use in manufacturing their own end-products.

The Diamond Black Leaf Company, Mr. Howell said, will thus continue chemical operations dating back to 1887, when the Kentucky Tobacco Products Corporations was formed and subsequently became Tobacco By-Products and Chemical Corporation, and most recently the Black Leaf Products Division of Virginia-Carolina Chemical Corporation. It stems from one of the earliest pest control chemicals, nicotine, developed in America.

John W. Kennedy, branch office sales manager for Diamond at Houston, Texas, for the past two and a half years, has been appointed general manager of Diamond Black Leaf Company. A veteran of many years' experience in the production and sale of agricultural chemicals, he will make his headquarters in Richmond.

March, 1955

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View of plant showing new processing tower and transformer house

## SACKETT READIES FERTILIZER MANUFACTURING COOPERATIVE PLANT FOR GRANULATION

*Increased demand for granular mixed goods prompted conversion of existing plant facilities.*

Speeding toward completion in a Baltimore fertilizer plant is a Sackett engineered modernization program which, when completed, will convert this plant's operation to the production of granular mixed goods. The A. J. Sackett & Sons Company of Baltimore also fabricated the required process equipment and is

furnishing field management for its installation.

The tremendous double crane bay plant in which this new T.V.A. type continuous ammoniating and granulating process is being installed is jointly owned by Cooperative G.L.F. Exchange of Ithaca, New York, Ohio Farm Bureau of Columbus, Ohio,

Southern States Cooperative of Richmond, Virginia and Pennsylvania Farm Bureau of Harrisburg, Pennsylvania.

The new process will produce granular mixed goods at an average rate of 20 tons per hour. This rate is based on a finished product classified to a minus 6 mesh plus 35 mesh. The same process will manufacture mixed goods in the conventional powdered form at a rate of 40 to 50 tons per hour.

Flow-wise, the solid ingredients are batch-weighed in the usual manner employing an existing multiple

**Top**—Albert Spillman of F.M.C. and Walter J. Sackett of The Sackett Company review details of the new process equipment.

**Center** — workmen installing gearmotor drive on new elevator.

**Below**—New dryer combustion chamber showing dual gas burners with automatic controls.

hopper system, are then screened and compounded through a Sackett Gravity Mixer and conveyed to an elevated supply hopper. At this point the batched blend of solid ingredients is converted to an accurately controlled flow by a continuous weighing machine which receives its feed from this supply hopper and exits its discharge to the ammoniator.

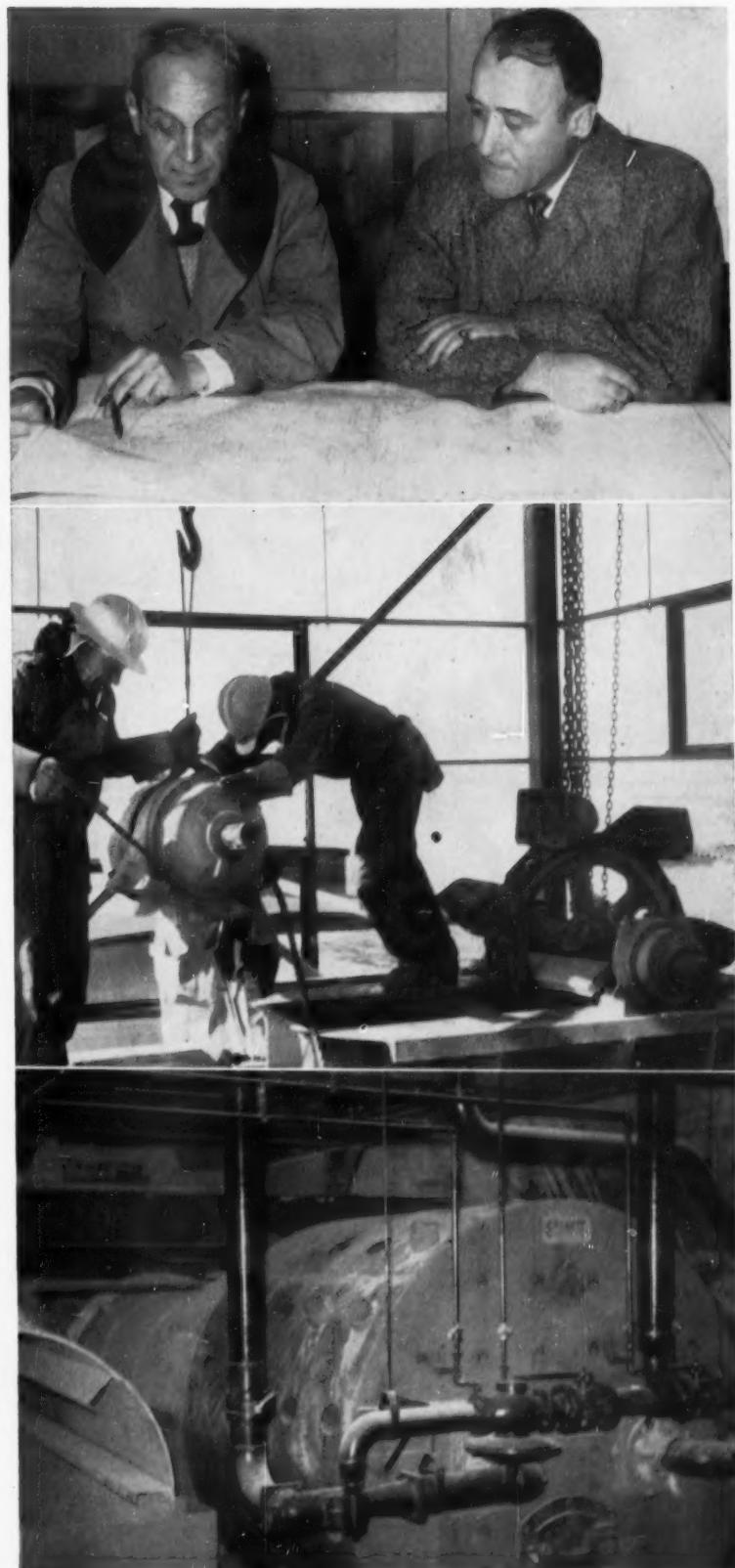
Metering equipment of the indicating and recording type is supplied to accurately control the flow of nitrogen solutions and/or anhydrous ammonia, sulphuric acid and water, which liquids are introduced in the ammoniator under a deep cascading bed of the solid materials.

A means is supplied for conveying the mixture thus ammoniated to the granulator with a by-pass directly to the cooler when producing conventional powdered type fertilizers.

The granulator exits its feed to a con-current type direct heat gas fired dryer, which is supplied complete with combustion chamber and twin cyclonic dust control equipment.

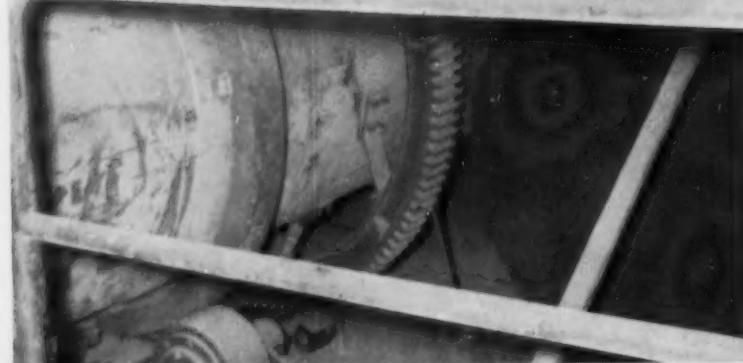
The dryer exits its feed to a counter-current type cooler. The dryer cyclones return the fines for regranulation. The twin cyclonic dust control equipment connected to the cooler also returns the fines for regranulation.

The cooler exits its feed to a double deck vibrating screen, which controls the range of grain sizes in the finished product from which point the finished product is conveyed.

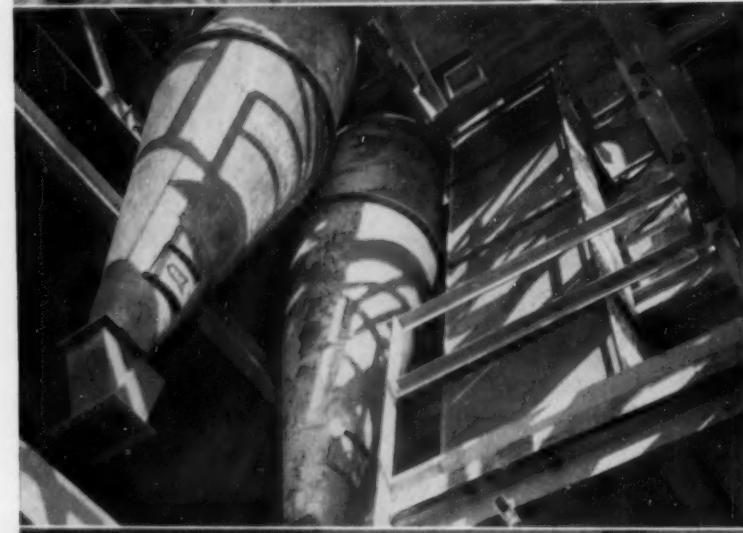




**Top**—Dryer showing ring gear and trunnion mounts.



**Center**—View showing twin cyclonic dust control equipment for cooler.



**Below**—Gathered around Marion Ingram (at desk) are (l. to r.): Herbert Forrester, George Dietz, Al Spillman; (inset)—Supt. Harry Fader.

Note: The pictures appearing in this story were made early February when snow and ice and 5 degree weather had descended on Baltimore. It was an interesting visit but plenty cold on that 100 ft. tower!

—Staff Photographs.

ed to the bridge cranes for transfer to storage.

The oversize from the double deck screen is then milled and further classified. The fines from the screen are re-cycled for re-granulation.

When producing conventional powdered type ammoniated mixed goods with this unit, the ammoniated mixture is simply by-passed from the discharge of the continuous ammoniator directly to the cooler, the flow of which is again diverted from the final double deck screen directly to storage, as its classification at this point is not required.

The curing period that will be required for the finished granular mixtures produced by this process will be reduced to a matter of a few days as compared to the several weeks needed to properly cure the powdered type of fertilizers.

Thus, speeding up the turnover of mixed goods in process will quicken the return on the money invested in raw materials and will enhance the operational efficiency of the plant through more effective use of its labor as well as its curing facilities.

Shipment of the finished product in bulk or packaged form is accomplished by transferring the desired grades from the curing section of the plant by the overhead cranes to the shipping units which are of conventional design.

COMMERCIAL FERTILIZER



*Enough to make the difference...*

# ANOTHER HUDSON MULTIWALL FIRST!



*Photo left: Actual light tracing photo shows how knife blade or pull and tug method of opening wastes time and product.*

*Photo right: Snap motion opening — saves time and product.*

**Snap-Open®  
MULTIWALL  
SACKS...**

## Provide Speed, Ease, and Economy

The pull and tug days of opening bags are over! Now you can offer your customers the Hudson Snap-Open Multiwall bag... the one bag that opens the fastest, easiest...with just a flick of the wrist...the one bag that guarantees full measure of its contents no matter how fast it's opened.

Engineered by Hudson to meet the demands of the farmer and processor alike, the Snap-Open Sack outperforms conventional opening bags in actual tests...without a trace of spilling. Here is the answer to speed, ease, and savings...with the built-in feature of flow control.

Dealers everywhere are asking for the new Hudson Snap-Open Sacks. Be among the first packaging your product in this newest bag. Allocations for this sensational selling multiwall are being received now. Available in most sizes, call your Hudson representative today, or write Dept. CF-3.

Hudson Multiwall Sacks are the only bags submitted monthly to the U. S. Testing Co., Inc. to assure continuous quality of product!



**EXTRA POINTS FOR HUDSON**  
• **QUALITY CONTROL**  
from tree planting to socks. Hudson is fully integrated.  
**WRITTEN GUARANTEE**  
your assurance of complete satisfaction in advance.  
**RIGID INSPECTION**  
includes a 39-point inspection and test program.  
**NON-SLIP INK**  
available at no extra cost.  
**MODERN PRINTING PLANT**  
for extra display appeal, increased sales for your product.  
**SPECIAL SERVICES**  
on delivery, storage and on inventory control problems.  
**"PROBLEM PRODUCT" PACKAGING**  
specialists to study your particular requirements.  
**SNAP-OPEN SACK**  
available to you at no extra cost — comes in most sizes.  
**U. S. TESTING SEAL**  
is your independent certification of quality.

**Hudson Pulp & Paper Corp., Dept. CF-3, 477 Madison Ave., New York 22, N. Y.**

**YES... send us information on your Snap-Open Sack and its sales building opportunities.**

Name  Title

Company

Address

City  Zone  State

# Personals . . .

**Kenneth A. Spencer**, president of the **Spencer Chemical Company**, Kansas City, received the 1955 distinguished service award of the National Association of Soil Conservation Districts at its ninth annual convention in San Diego on February 2. The award is made annually to national figures for outstanding service to the cause of soil and water conservation.

\* \* \*

**Porter M. Jarvis** has been elected president of **Swift and Co.**, Chicago. He succeeds **John Holmes** who has held the presidency since 1937 and who becomes board chairman and chief executive officer.

\* \* \*

Retirement of a veteran executive and promotion of two other key officials to new posts of greater responsibility at **Diamond Alkali Company** were announced by **John A. Sargent**, president.

**C. E. Lyon**, vice president and general manager of Diamond's chlorinated products division since January, 1954, will retire May 1. Appointed to succeed him as general manager of this division is **Loren P. Scoville**, director of engineering for the past 10 months.

Scoville's successor, in turn, is **C. C. Brumbaugh**, who since September, 1954, has held the position of director of research—atomic energy, alkali and electrolytic products.

Promotion of **James O. King** to the position of special staff assistant in the sales department of Diamond Alkali Company at its national headquarters in Cleveland, Ohio, was announced by **W. H. McConnell**, vice president—sales.

\* \* \*

**Charles Loring** has been appointed Eastern district sales manager of the **Industrial Chemicals Division** of **Stauffer Chemical**. It was announced by Hans Stauffer, president.

In his new capacity, Mr. Loring will be in charge of sales of industrial chemicals in the New England, Central Atlantic and South-eastern States. During his ten years with Stauffer, Mr. Loring has been in domestic and export sales, and has been a product sales manager of the Industrial Chemicals Division.

**Gifford A. Acker** assumes Mr. Loring's previous responsibilities for the sale of industrial sulphurs, Crystex, tartrates, and potassium nitrates in the Eastern area. Mr. Acker has been with the company since 1940.

\* \* \*

**R. N. Conners**, executive vice president of **Chase Bag Company**, was elected president of the **Textile Bag Manufacturers Association** at its annual meeting in New Orleans, according to an announcement from headquarters of the Association in Evanston, Illinois. **T. J. Semmes**, President of **Semmes Bag Company**, Memphis, was elected vice president.

Mr. Conners previously served as chairman of Advertising and Promotion for the trade group, comprising over thirty member firms engaged in the manufacture of textile bags.

\* \* \*

**Joe L. Kirk**, former vice president of **Carman & Co.**, has been appointed to the newly created post of

The Frank G. Hough Co., Libertyville, Ill., has just announced the promotion of **G. A. Gilbertson** (left) and **R. L. Beyerstedt** (right) to executive vice presidents. Mr. Gilbertson, formerly vice president in charge of sales, advertising and service, is now executive vice president and general manager. In his new capacity, he will assume responsibility in assisting Mr. Hough with overall management and policy matters. Mr. Beyerstedt, formerly vice president and chief engineer, is now executive vice president in charge of engineering and product development and will have additional responsibilities with respect to the company's accelerated product development program.



The Multiwall Bag Division of **Albemarle Paper Manufacturing Company** of Richmond, Virginia announces appointment of **Dirk Young** to the Iowa-Nebraska territory. He will have headquarters in Des Moines, Iowa. For the past several years Mr. Young has worked in the Illinois and Wisconsin territory for Albemarle. In moving to the new territory, Mr. Young will remain in the Midwest Sales Division but will make his home and establish his headquarters in Des Moines.

director of sales and advertising for the **Douglas Chemical Company**, it was announced by **W. C. McCaslin**, executive vice president.

Douglas Chemical Company, manufacturers of fumigants, insecticides and agricultural chemicals has ex-

Russell J. Geitman has been appointed chief engineer for Link-Belt Company's plant in San Francisco, effective February 15. He will direct the design of all equipment made at this plant.





Russell E. Spivey has been named general manager of the Smith-Rowland Co., manufacturers of nitrogenous tankage, and a division of Smith-Douglas Co., Inc. In making the announcement, J. A. Monroe, Smith-Douglas vice president in charge of Procurement, Traffic and Export Trade, said that W. W. Johnson, who had been Smith-Rowland's general manager, has resigned to take advantage of another business opportunity. Spivey joined Smith-Douglas in 1951 as assistant to the vice president in charge of Procurement and Wholesale Marketing. A graduate of Virginia Polytechnic Institute with a B.S. in vocational agriculture, he has previously been associated with Swift and Co. in Wilmington, N. C., and Weaver Fertilizer Co. Smith-Rowland operates plants in Norfolk, Va., Granite City, Ill., and Selbyville, Del.

Executive and headquarter offices in North Kansas City, Missouri.

\* \* \*

**R. B. LeRoy**, sales manager of the East Pepperell, Mass., multiwall paper bag plant of **Bemis Bro. Bag Company**, has been placed in charge of newly established Bemis facilities in Minneapolis for manufacturing a new line of Bemis products which fall broadly into the field of molded cellulose packages, and will be known as "Tekmold Products."

**R. F. Allen** has joined the staff of Bemis paper control laboratory, Boston, as laboratory supervisor and assistant to **A. R. Ewing**, laboratory head.

**F. W. Copley**, manager of the Bemis Buffalo plant and sales divisions since 1923, has announced his forthcoming retirement, effective March 31. He will be succeeded as manager by **A. S. Roper**, now assistant manager.

Mr. Copley joined Bemis in 1910. Mr. Roper began his work with Bemis in 1917.

\* \* \*

**Frank L. Christy**, president of **The Marietta Concrete Corporation**, Marietta, Ohio, was re-elected to his position as head of the company at the recent annual meeting of the

stockholders and directors of the corporation. Also re-elected were the following officers:

**F. Leonard Christy**, vice president—sales; **C. B. Ross**, vice president—production; **R. Neil Christy**, vice president—engineering; **C. F. Fogle, Sr.**, secretary; **C. K. Smith**, treasurer. These men, as well as **J. Darwin Ross**, were also elected as directors.

**Harold Miller** was renamed as comptroller, and the law firm of **Fogle and Fogle** was again retained as corporation counsel. Appointments as heads of the Marietta Concrete Branch Plants were confirmed for 1955 with the following men in the position indicated: manager of the Baltimore plant, **J. Darwin Ross**; manager, Nashville Branch, **Robert D. Johnson** with **Fred Needham** as plant superintendent; manager, Charlotte Branch, **Vernon Gatewood**; manager, Hollywood Florida Branch, **R. Neil Christy**. The manager of the recently acquired Jamestown, New York Branch is **Robert Christy**.

\* \* \*

Effective April 1, **Oliver W. Jokerst** will be district sales manager, with headquarters in St. Louis, Mo., for **National Gypsum**, according to an announcement by **Melvin H. Baker**, board chairman. At the same time, **Robert L. Macklin** becomes assistant district sales manager in the St. Louis area.

Formerly assistant district sales manager in St. Louis, Jokerst started

Appointment of Dr. William L. Garman of Ithaca, New York as agricultural service manager was announced last month by the Grand River Chemical Division of Deere & Company. Previously Dr. Garman was assistant professor of Soils, Agricultural Experiment Station and Agricultural Extension Service, Cornell University, Ithaca, New York. He has contributed numerous articles and bulletins on agricultural subjects to scientific and general agricultural publications. Dr. Garman is a member of the American Society of Agronomy and the Soil Science Society of America. He is also a member of Phi Kappa Phi, Sigma Xi, Alpha Zeta, Phi Lambda Upsilon, and Phi Sigma honorary societies.



On February 1, Dr. Roy P. Pennington assumed active management of the American Potash Institute's Canadian Office in Hamilton, Ontario. This follows retirement of E. K. Hampson, Canadian Manager since the Institute was formed in 1935.

Dr. Pennington returns to Canada after serving from 1949-1955 in the Agronomy Department at Pennsylvania State University. He was born in Toronto and did his undergraduate work in chemistry at the Ontario Agricultural College, receiving his B.S.A. degree in 1942. Graduate work on clay mineralogy at the University of Wisconsin culminated in a Ph.D. degree in 1949. From 1945-1946 he was laboratory assistant at the Ontario Agricultural College, and from 1946-1949 research assistant at the University of Wisconsin. At Penn State his work has been in soil fertility and plant nutrition with the emphasis on grassland agriculture.

with National Gypsum in 1947 as a general line salesman. Before that, he had been associated with the St. Louis Star-Times and General Motors.

Before joining National Gypsum in 1948, Macklin was employed by Cadillac Motor Company and Capitol Insulation Company, Danville, Ill.

Jokerst succeeds **Robert A. Pence**, who will retire on April 1.

**Henry A. Kennington**, general sales manager of **The Raymond Bag Company**, Middletown, Ohio, announced the appointment of **Ward F. Sparkman**, as the Southeastern district representative for Raymond Bag. Mr. Sparkman will direct sales in the states of Alabama, Georgia, Florida and Tennessee.

Mr. Sparkman has over 20 years' experience in the bag business in the South, having operated his own company, in addition to spending several years with Mente & Company, Inc.

**J. B. Willis**, assistant to the vice president in charge of research of **Sinclair Refining Company**, has been appointed chief process engineer of **Sinclair Chemicals, Inc.**



Recently announced changes at Federal Chemical Co., Louisville, Ky: **Frederic H. Courtenay** (left) who has been elected secretary, joined the company in 1950, and has worked in the production and sales departments at three of the company's plants. **Clark L. Kelly, Jr.** (center), who has been elected assistant treasurer, has been with the company since 1947, and has been

assistant credit manager for the past two years. **Woodford N. England** (right), who has been named advertising manager, has been with the company two years and worked in its Kentucky sales division until his recent appointment. Prior to joining Federal, Mr. England spent a year working as assistant agronomist at the Kentucky Experiment Station.

**Earl Noblet** has joined Sinclair Chemicals' market development dept. according to announcement by **John A. Scott**, executive vice president. Mr. Noblet comes to Sinclair from **American Cyanamid Co.**

at an Association dinner in his honor at the Hotel Statler, New York.

\* \* \*

**Hudson Pulp & Paper Corp.**, a leading producer of multiwall shipping sacks, has appointed a new president, **William Mazer**, and elevated two key executives to top management status.

Announcement of the new president was made by **Jacob Mazer**, who moved up from president to chairman of the board, a position open since the death of his father, **Abraham Mazer**, two years ago.

The other new officers are: **Irwin A. Zuckerman**, from sales manager to vice president in charge of the consumer products division, **Raymond S. Hatch**, from director of research to vice president in charge of research.

The appointment of **R. Andrew Jenkins** as assistant manager of **Virginia-Carolina Chemical Corpora-**

**tion's** sales office in Baltimore, Md., has been announced by **C. Cecil Arledge**, vice president. He has been with V-C since 1946.

\* \* \*

**Martin F. Wilkerson** has been appointed manager of the Houston branch sales office of **Diamond Alkali Co.** succeeding **John W. Kennedy**, who was made general manager of the **Diamond Black Leaf Co.**, Richmond.

**Dravo Corporation** today announced the appointment of **H. W. North** as chief engineer of the newly-established process equipment department of its engineering works division.

The new department will design, fabricate and market pressure vessels, mixers, blenders, filtering equipment and related machinery. Mr. North's headquarters will be at Dravo's Neville Island, Pittsburgh, office.

**H. D. (Dean) Wellington**, formerly with **Bagpak division, International Paper company**, has been appointed Western sales manager of the **Gilman Paper Company** and its subsidiaries, with offices in the Daily News Bldg., Chicago, Illinois. Dean Wellington's experience with International Paper Company covers 14 years. **Fletcher L. Munger**, former Western sales manager is now sales manager for **Kraft Bag Corporation**, with headquarters in New York.

\* \* \*

**Kenneth R. Brown**, vice president of **Atlas Powder Company**, Wilmington, Delaware, has been awarded the 1955 honor award of the Commercial Chemical Development Association. The award will be presented to Mr. Brown on March 17

**Jim Jackson**, Chase Bag Company sales representative and amateur golf star from St. Louis, named to the United States Walker Cup team for his second consecutive year.

**H. E. Dennie**, right, has been named manager of the Chase Bag Company Philadelphia branch. It was announced by **R. N. Conners**, executive vice president. Mr. Dennie has been sales manager of the branch since 1952. He succeeds **J. P. Grady**, who continues as eastern regional sales director for this manufacturer of bags and packaging. Mr. Dennie has been with Chase Bag for ten years.

**E. P. Alexander**, left, formerly manager of the company's Detroit office, has been named sales manager of the Chicago sales office. In this new position he will coordinate direct-selling activities of the Chicago facility, of which **A. A. Glatz** is manager. **D. B. Fendler** is now sales manager in Detroit. **J. F. Pouchot**, salesman with the Chicago office, has been appointed to the sales promotion department.



# Model A Bagpaker® makes one man a team



The Model A Bagpaker® makes large tonnage bagging of free flowing materials a one man operation—and up to 350 tons can be bagged per 8 hour shift without overtime.

All the operator does is hang the empty bags on the filling spouts. Accurate weighing, filling, settling and sewing are fully automatic.

Engineered and manufactured by Bagpak Multiwall Bag experts, the Model A Bagpaker® is designed for reliability and durability. It can be depended upon to give years of service—and to pay for itself in as little as one year. If you are interested in the utmost in economy and efficiency in packaging bulk materials, you'll want to have all the details on this on this efficient machine. For complete information on how the Model A can fit into your packaging picture write to: C-17

International Paper Company, Bagpak Division  
220 E. 42 Street, New York 17



# International Paper

**BAGPAK DIVISION** COMPANY

BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston • Chicago • Cleveland • Dallas • Denver • Des Moines • Detroit • Kansas City, Kansas • Los Angeles • Louisville • Minneapolis • New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • IN CANADA: The Continental Paper Products, Ltd., Montreal, Ottawa, Toronto

Three men have been added to the Du Pont garden chemicals sales force and two new sales territories for this line are being opened. **Bernard A. McCabe**, has been transferred from the company's fabrics and finishes department to the garden section of the **Grasselli Chemicals Department**.

Two new men are **Clinton B. Harris, Jr.**, and **Gordon P. Robinson**. Also affected in the changes is **Frank J. Winstel**, who is being transferred

from Cleveland to a new territory in Cincinnati. Mr. Harris is being assigned to the Greater Cleveland area, and the Lake Shore area of western New York. Mr. Robinson, who will be located in St. Louis, will handle the newly designated territory of Missouri, eastern Kansas and southern Illinois. Mr. McCabe will cover northern New Jersey, northeastern Pennsylvania, and the bordering area of southeastern New York.

Du Pont is establishing a full-time turf specialist to handle development and service work on turf applications of the company's pest control products and soluble plant food. The new position will be filled by **Robert T. Miller** who has represented the Du Pont seed disinfectant section in the North Atlantic states for about five years. He will cover these states and his activities will extend into surrounding states to the west and south.

\* \* \*

**The Pacific Coast Borax Co.**, Division of Borax Consolidated, Limited, has announced the appointment of **W. J. Dibble** as general sales manager, Western Division, Bulk Department. In his new position Mr. Dibble will supervise operation of the Agricultural Sales Division and be responsible for Industrial Sales in the Western States.

The Pacific Coast Borax Co.'s agricultural sales division has announced the appointment of **F. M. Dosch** as the district manager of its district office in Kansas City.

#### Arkell & Smiths Introduces New Moisture Barrier

Arkell & Smiths, manufacturers of paper bags, is now introducing a new moisture-barrier sheet, Lamo-Pak, to all industries whose packaged products are affected negatively by changes in moisture content. The newly-developed laminate, Lamo-Pak, is sandwiched between two sheets of light weight kraft, and is particularly adaptable for hygroscopic materials.

Samples of the new LAMO-PAK moisture-barrier sheet may be obtained from Arkell & Smiths, Canajoharie, N. Y.

Arkell & Smiths, is offering a valuable 10 page Bulletin on "Palletizing Filled Multiwall Bags." Based on laboratory tests and field checks, and complete with detailed drawings, the Bulletin contains useful ideas and suggestions to facilitate handling, shipping, and adapting bags now being used, to fit a given pallet.

Copies of the Bulletin may be obtained by addressing their packaging department.

Here's a good chemical for 3 jobs

Sprays  
Dusts  
Fertilizers

Triangle Brand Copper Sulphate

Triangle Brand Copper Sulphate has been recognized as an effective agricultural chemical for more than sixty years. In sprays (where Bordeaux mixtures are the most reliable), in dusts (if you prefer them) and in fertilizers (for additional enrichment of the soil) Triangle Brand Copper Sulphate has proved itself worthy and dependable. Try these Triangle Brand forms of Copper Sulphate:

**INSTANT** (powder) for quick and efficient mixing or Bordeaux sprays.

**SUPERFINE** (snow), **SMALL** or **LARGE CRYSTALS**, all containing 25.2% metallic copper.

**BASIC** Copper Sulphate in powder form, containing 53% metallic copper.

Write for booklets that will help you solve your agricultural problems.

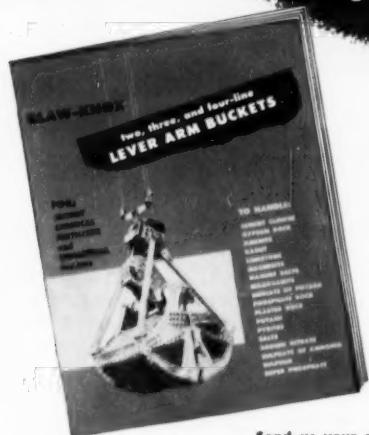
Control POND SCUM and ALGAE with Triangle Brand Copper Sulphate. Write today for information on how it can help you maintain healthy water conditions.

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# How to PREVENT CONTAMINATION in your Material Handling Operations



## Send for this Bulletin about BLAW-KNOX Tight-Lip Buckets

THIS BULLETIN tells how the "tight-lip" construction of Blaw-Knox Chemical and Fertilizer Buckets prevents costly contamination caused by leakage of granular fines.

Blaw-Knox Buckets are designed with proper distribution of weight for maximum performance based on many years of intimate experience in the handling of various bulk materials in the chemical and fertilizer fields.

The wide range of available models permits a selection of the proper size, weight and type bucket to fit your installation requirements and obtain peak performance.

Send us your problem and ask about the Blaw-Knox engineering service available without obligation to help you solve it. Write for Bulletin 2378 today.

**BLAW-KNOX COMPANY**  
Construction Equipment Division  
Department 462  
PITTSBURGH 38, PA.  
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## BLAW-KNOX FERTILIZER BUCKETS



ALUMINUM TANK  
9'-0" Diameter x 30'-0" Long  
12,825 Gallons

"Cole" can furnish tanks made of **steel**, **aluminum** and **stainless steel** — built in accordance with ASME Code to meet all insurance requirements. Measuring tanks of Stainless Steel are carried in stock.

We invite your inquiries for Storage Tanks to handle Ammonia and Nitrogen Solutions. Anhydrous Ammonia—complete with fittings. Also Elevated Water Tanks, Acid or Oil Storage Tanks, Bins, Boilers, Stacks, etc.

**R. D. COLE MFG. COMPANY**  
Newnan, Ga.



STEEL TANK  
8'-6" Diameter x 38'-6" Long  
16,500 Gallons

## DOLOMITIC

ANALYSIS  
GUARANTEED



## LIMESTONE

. . . 60% Calcium Carbonate  
. . . 39% Magnesium Carbonate

## WILLINGHAM-LITTLE STONE COMPANY

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"41 Years Service to the Fertilizer Industry in the Southeast"

## ARIZONA

**Arizona Fertilizers**, Phoenix, last month celebrated their 25th anniversary. Originally they were known as Arizona Natural Products Company, because their stock in trade came straight out of barnyards. Now they have plants at Phoenix, Yuma and Toltec—the latter in process of being expanded by a 100 x 50 foot warehouse. **J. A. Feffer** was founder. His son, **Frank**, is now president. **M. F. (Mac) Wharton** quit his job as associate professor of horticulture and joined them in 1939. And Mac's son, Mac Jr., is now also with the company—a double father and son team,—and the third generation.

## CALIFORNIA

**International Minerals & Chemical** has bought all the assets of **U.S. Mining** and of **Peerless Perlite**, both of Los Angeles. These include very large reserves of high quality perlite ore in Inyo County, a drying and grinding plant near Big Pine and a perlite expanding plant near Los Angeles. **Norman J. Dunbeck** IM&C vice-president has been put in charge of the operations.

**Brea Chemicals** has begun construction of the \$2,000,000 plant adjoining their ammonia plant, which is scheduled to turn out 50,000 annual tons of fertilizer grade ammonium nitrate. They expect to be

Embodying the very latest technical advances in both construction materials and methods, as well as mechanical equipment, the new Tilghman Co. \$150,000 plant is ninety-five feet wide and 210 feet long, with a gallery for conveyors above. Walls of the building are of reinforced concrete and the roof of corrugated asbestos around a structural steel frame. All bin partitions are of the book-shelf (horizontal) type, designed to keep all lateral pressure from the walls. The operating aisle extends down the center of the building on the first floor. Bulk raw materials are unloaded at each end of the plant—from boats on the north end and from railway cars at the southern end. A bucket elevator lifts materials to a fixed belt conveyor, which delivers to various bins. The main machinery is located along one side and approximately in the very center of the plant. This consists of a six-compartment hopper system with one weigh scale under it. The weighed batch discharges by gravity to the first elevator of a one-ton mixing unit. Here blending and ammoniation are carried out, using nitrogen solutions. The mixed fertilizer is elevated by a second bucket elevator and carried to the bins for storage by a system of belt conveyors.

in production by mid-Summer, according to **Jack Tielrooy**, manager of development. The plant will be owned by **Amoniaco Corp.** and leased to Brea.

At Fresno, Brea is building a \$100,000 ammonium phosphate unit, planned for 210,000 gallons, and built as an adjunct to their aqua ammonia distribution terminal there.

**American Potash & Chemical**, Trona, may some day be on a direct Union Pacific line through the San Bernadino Mountains, a more direct route than presently serves them.

## FLORIDA

**Gulf Chemical** (United Gas-Electric Bond & Share) has bought 2,000 acres near Pensacola and awarded to **Chemical Construction** the plant construction contract. They will turn out, among other products, ammonia, ammonium nitrate and nitric acid. The plant is expected to cost \$23,000.

**Superior Fertilizer and Chemical**, Fort Pierce, had a fire recently which caused \$8,000 damage. Starting in a wooden close-in porch, it caused an explosion which spread the flames. Operations were not interrupted.

## ILLINOIS

**U.S. Industrial Chemicals** (National Distillers) is in full swing now

with its \$7,000,000 ammonia plant at Tuscola. In a ceremony bristling with big names, the plant was recently dedicated. Capacity is 50,000 annual tons of anhydrous ammonia, and it is equipped to produce ammonium nitrate also.

**Minor Preston Bishop** has swapped a farm for the fertilizer business of **Elmer Still**, LeRoy. He will expand it.

## INDIANA

**Calumet Nitrogen Products Company**, a new company that will build an ammonia plant at Hammond, has been announced by **Standard Oil Company** (Indiana) and **Sinclair Refining Company**.

**J. H. Forrester**, manager of Standard Oil's research department, has been elected president of Calumet. **E. W. Griscom**, manager of Sinclair's East Chicago refinery, is vice president. Other directors include **J. A. Scott** and **O. P. Thomas** of Sinclair, and **W. A. Culin**, **J. C. Ducommun** and **C. J. Struble** of Standard.

**Fluor Corp.** has the contract to construct a 300-daily ton anhydrous ammonia plant capable of converting a portion of the ammonia to nitrogen solutions. It will be located near the Whiting and East Chicago refineries of Standard Oil and Sinclair.

Construction is expected to get

The bagging system, where the finished product is packaged, consists of an elevator screen and tailings mill for bagging in either 80 pound paper or 167 pound burlap bags. Following this the bagged fertilizer goes on a conveyor directly to waiting delivery trucks.

The plant was especially designed by Staff Engineer F. N. Strudwick to conform to the firm's local operation. The Stedman Foundry & Machine Co., Aurora, Ind., designed and furnished the machine system, while steel was furnished by Dietrich Bros., Baltimore.

Additional conveyors were supplied by Oliver Corp., York, Pa.; bagging machine, Inglett & Corley Co., Augusta, Ga.; scales by Howe Scale Co., Rutland, Vt.; steel measuring tank and fittings by Old Dominion Iron & Steel Corp., Richmond; glass tubes, valves, etc., by Tidewater Supply Co., Norfolk, Va.

Officers of Wm. B. Tilghman Co. are: President—Wm. B. Tilghman, Jr.; Vice-President—Louise T. Lambert, Vice-President & Manager, Pocomoke Plant—Ralph A. Ross, Secretary & Treasurer—John L. Morris, Asst. Sec. & Treas. Staff Engineer—F. Nash Strudwick, Sales Manager—Edward H. Smith.





## Around the Map

under way in April. Completion and initial operations are scheduled for May in 1956.

By-product hydrogen from reforming of napthas will be supplied from both Sinclair's and Standard's refineries to be used in the manufacture of ammonia.

Products of the plant will be marketed chiefly in the Midwest area. Standard and Sinclair will each market its portion of the products separately. Shipments out of the plant will be made by tank truck and tank car to both industrial and agricultural users.

### IOWA

**Chemco of Iowa** which has 21 distribution points and last year served 175,000 acres with anhydrous ammonia, has become part of **Chemical Enterprises** through an exchange of stock. This brings C-E to some 300 distribution points in 21 states.

**Ris-Van Fertilizer**, Belmond, are

On Jan. 25, the Board of Commissioners of Lake Charles Harbor and Terminal District, Lake Charles, La., officially put into operation its new \$1,500,000 installation of eight Marietta industrial silos (holding 16,000 tons), for use in storing and processing phosphate rock. The new industrial storage silos, 30 feet in diameter and 70 feet in height, were erected by The Marietta Concrete Corp., Marietta, Ohio, handled by Marietta's Nashville (Tenn.) branch plant headed by Robert D. Johnson. As the building site presented a problem for in order to support the weight of the large silos, which are located on low ground only 350 feet from the water's edge, it was necessary to first set concrete piling supports 80 feet deep for each silo. The land on which the silos rest is only 12 feet above sea level. Marietta construction crews completely erected the eight silos in only 60 days, after which the rock crushing machinery and ore conveying belts were installed.

establishing an anhydrous ammonia operation, similar to the one they now operate in Thornton. **J. A. Risvold** and **Kenneth Van Duzer** are the owners.

### KANSAS

**Cooperative Farm Chemicals** plant at Lawrence is stepping up production nicely, by this month they expect to reach their monthly 5250 ton level of anhydrous. The plant first went into production in December.

**Kan-Gro's** fertilizer plant at Junction City suffered a \$7500 fire loss. No fertilizer materials were damaged, but the tool shop was badly damaged. Superintendent **E. J. Mathson** was just backing out of the door when a gasoline drum blew, singeing his eyebrows and hair—a narrow escape.

### KENTUCKY

**Spencer Chemical's** \$1,600,000 expansion program at Henderson is

Other contractors on this project included Raymond Concrete Pile, for the installation of all piling; Frank Miller & Sons, foundation work; Hewitt-Robins Co., conveyors; Raymond Mill Co., rock crushers and steel work by Smiley & Co. Barges are being used to transport the phosphate rock from Florida where it is mined to Lake Charles, and the rock is unloaded into the silos by means of conveyor belts (handling 200 tons per hour) extending to the docks. The rock is taken from the silos as needed, crushed (at rate of 25 tons per hour) and loaded into railroad gondola cars for shipment to fertilizer plants.

According to **E. J. Christman**, Lake Charles Harbor and Terminal District Port Director, this is the only installation of its kind where phosphate rock is being transported, stored and processed in this manner.

about 25% complete, according to **R. D. Wallace**, plant manager. The expansion will permit production of nitric acid.

### MINNESOTA

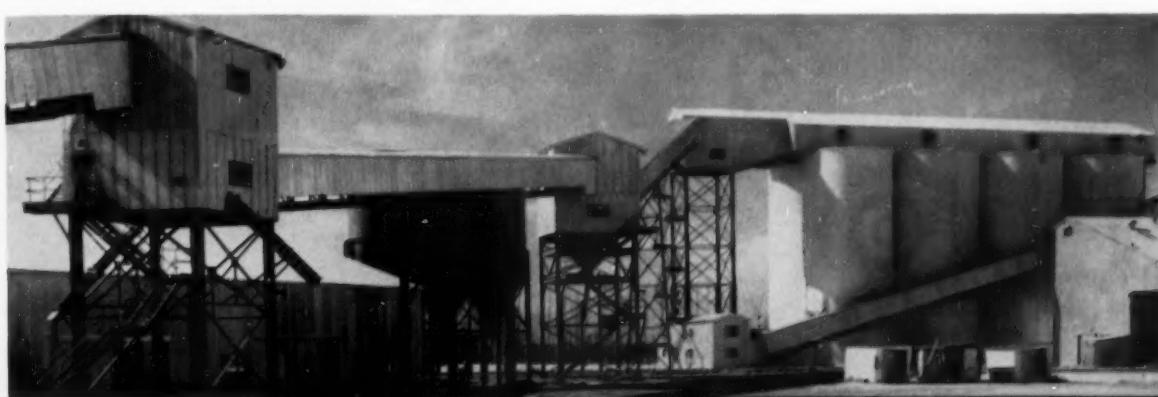
**St. Paul Ammonia Products Co.**, newly incorporated by a group of Canadians, plans a \$15,000,000 ammonia and nitrates plant near St. Paul which should produce 200 daily tons. **Robert Campbell** of Vancouver, is head of the concern. **Lummus Corp. of America** has been awarded the planning and construction contract, and completion is expected in 14 months.

### MISSOURI

**Missouri Farmers Association** are producing at their Joplin plant a 12-36-12 fertilizer which is said to be the highest analysis complete fertilizer ever manufactured for general farm use.

**LaPlata Chemical**, LaPlata, have completed the \$50,000 installation of pelletizing equipment which began last September, and are now shipping. They have capacity for 200 daily tons of pelletizing goods. New bagging equipment and additional storage capacity were included in the project.

**Consumers Oil and Supply** are in production with their new plant at Braymer.





Just about a year ago to the month, Southern Lead Burning Co., 936 Adamson St., S. W., Atlanta, Ga., completed the new building shown at left above and have just recently completed the addition (at top right) which adds 5000 sq. ft. additional plant floor space. Stepped up plant facilities will permit fabrication of equipment of size that can be handled by rail or truck and will offer better service at lower cost. The company offers a wide line of fabricating services and in addition to their extensive lead lining work have expanded their lining of chemical tanks to include both Koroseal and rigid Koroseal which is finding wide and growing use in fertilizer plants.

The company also distributes from their Atlanta warehouse rigid Koroseal pipe, fittings and valves for immediate delivery. Southern Lead specializes in the manufacture of lead lined tanks, lead pipe lines, acid filters, lead coils, lead valves, stainless steel tanks, tanks and duct work neoprene lined, etc., and lead burning for sulphuric acid plants. The company also serves other tank manufacturers in the Southeast (in the Birmingham, Atlanta, Chattanooga and Charlotte areas).

William F. Kelly and Joseph J. Kelly founded and head the company's operation, now in its tenth year.

## NEBRASKA

**Allied Chemical & Dye** has asked authority to be supplied with 12,000,000 daily cubic feet of natural gas at La Platte, in order to make possible a doubling of its nitrogen production.

\*\*\*

**Western Fertilizer and Cordage Company, Inc.**, Alliance has been formed with \$100,000 authorized capital. **Gordon J. Keely, Joseph A. Kelly and Roger L. Crum** are incorporators.

\*\*\*

**Hamilton County Fertilizer Company**, Aurora, has been established by **Adolph J. Nielson, John W. Schneider and Bernard M. Reinmiller**. They will handle anhydrous ammonia and fertilizer equipment.

\*\*\*

## NEW MEXICO

**Freeport Sulphur** is negotiating for a 360 tract of Federally owned land on a land-swap basis in the Carlsbad area, in order to go ahead with that \$16,000,000 potash mine and refinery they have been planning.

## NEW YORK

**GLF** are planning an \$800,000 mixing plant at Big Flats, which they hope to have in operation early

next year. It will probably be equipped to make granular fertilizer.

## OHIO

**Smith Agricultural Chemical** stockholders have approved a three for one stock split, issuing 150,000 shares of no par common to replace the 50,000 now outstanding. Headquarters are at Columbus, with plants there, at Indianapolis, Saginaw, Holland, Mich. and Carey, O.

\*\*\*

**Batelle Memorial Institute** are about to move equipment into the buildings resulting from their \$300,000 construction program, which will provide large scale research studies.

## TEXAS

**Stauffer Chemical Company**, New York, has completed a modern insecticide and fungicide blending plant at Lubbock, serving Western Texas and New Mexico. The Lubbock plant now replaces Stauffer warehouse facilities established three years ago in the same area.

\*\*\*

**Red Star Fertilizer's Sulphur** Springs plant has completed an expansion program which will double capacity. It includes granulating equipment and "scrubbing" equipment which will cut down odors and neighbor trouble.

**Southwest Fertilizer & Chemical** has established an acid delinting plant for cotton farmers at their El Paso center.

## UTAH

**American Sulphur and Refining's** Sulphurdale plant is on the line now with a capacity of 100 daily tons of refined sulphur.

## WASHINGTON

**Columbia River Chemicals** officials visited Walla Walla to check on the progress of the county port district toward preparing the site for their \$12,000,000 fertilizer and chemical plant, which they hope to get under way this spring.

## CANADA

**Western Potash Corporation**, Montreal, is negotiating with an unidentified U.S. concern for the joint development of Saskatchewan potash deposits, which could involve big-scale operation.

\*\*\*

**The Potash Co. of America** is busy sinking the \$3,500,000 shaft already reported here at Floral, Sask.

\*\*\*

**International Minerals & Chemical** has been granted six withdrawal areas in Saskatchewan, making 3 Carlsbad concerns now operating in the area.

## ENGLAND

**Imperial Chemical's** new sulphuric units at Billingham, which cost \$5,800,000 are now in production, adding 73,000 annual tons a total of 180,000 annual tons production.

## INDIA

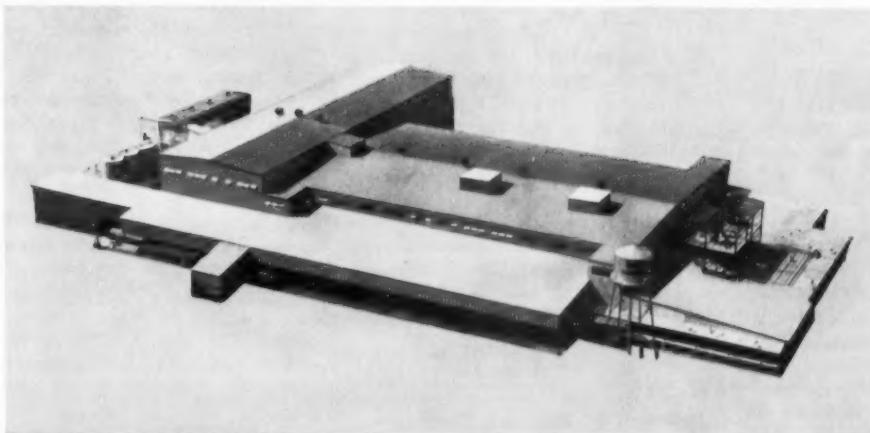
**Indian Government** has awarded to Montecatini the contract for the \$14,000,000 urea and ammonium nitrate plant to be at Bihar, adjacent to Sindri.

## IRAQ

**Texas Gulf Sulphur's** proposals to the Government have been turned down and the negotiations broken

*Here's  
Why*

## FERTILIZER INDUSTRY LEADERS choose McCLOSKEY ENGINEERED BUILDINGS



*Plant built at  
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McCloskey experience in building fertilizer plants and storage buildings—large or small—guarantees the success of your expansion program. You get the building you want, when you want it—at lower initial cost.

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Your investment is put to work sooner with a plant designed for high-level production. Utmost usable space is assured by truss-free rigid frame construction. Unimpeded movement of overhead conveyors, high stacking, easy-access maintenance, superior load tolerance and exceptional shock resistance distinguish the many McCloskey structures now serving industry in the United States and abroad.

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## SOUTHERN STATES PHOSPHATE and FERTILIZER CO.

SAVANNAH, GEORGIA

Manufacturers of SULPHURIC ACID, SUPERPHOSPHATE, COMPLETE FERTILIZERS  
and ALL TYPES OF BASE GOODS

EXPORT ORDERS SOLICITED

off over the development of sulphur deposits. The Government now plans to employ "an expert" to advise them on what they can do for themselves.

### JORDAN

**Jordan Phosphate**, Amman, is doing so well with shipments to Poland, the Far East, Japan and elsewhere that they are preparing to increase plant capacity to 200 million annual tons.

### KOREA

**McGraw-Hydrocarbon**, a joint venture of **F. H. McGraw & Company**, engineers and constructors of Hartford, Conn. and **Hydrocarbon Research, Inc.**, New York City, has been advised by the Korean Embassy that it has been selected to negotiate a contract to construct a urea fertilizer plant for the Republic of Korea. The plant will cost approximately \$25-million.

The new fertilizer facility will have an annual capacity of 80,000 tons and will supply nearly one-third of the needs of Korea, which has been a large importer of fertilizer. The plant is being financed by the Foreign Operations Administration of the U.S.

According to **Clifford S. Strike**,

McGraw president, and **P. C. Keith**, president of Hydrocarbon, preliminary engineering and survey work will get underway immediately and estimated time for the plant's completion is 30 months.

It is expected that top supervisory and administrative personnel for construction of the large plant will be recruited in the United States but McGraw-Hydrocarbon officials state that they will utilize Korean technical assistance and building forces inasmuch as it is possible. "We anticipate," Mr. Strike stated, "that Korea will be able to provide us with a substantial work force with some experience in construction."

### SWEDEN

**Potasse & Engrais Chimiques**, Paris, have been awarded the contract for construction of a fertilizer plant in Koping, for **Svenska Salpeterverken**. The plant will be on stream in a few months.

The new plant will employ the PEC carbo-nitric process and will have a daily capacity of 400 metric tons. Svenska Salpeterverken plans to produce 13-11-13 grade fertilizer and has obtained a non-exclusive license from PEC for the patented carbo-nitric process.

There are two other plants in Europe that use the PEC processes: one in Castrop-Rauxel, Germany, which is producing 500 tons per day by the PEC carbo-nitric process and which has been in operation since 1953; the other plant is located at Grande Couronne near Paris and has been operated by PEC for the past ten years. The French plant has a capacity of 600 tons per day and uses the PEC sulpho-nitric and phospho-nitric process.

PEC is contemplating the installation of ammonia facilities at Grande Couronne and will use waste CO<sub>2</sub> gas from this plant to produce complex fertilizer by the carbo-nitric process. The carbo-nitric process produces complex fertilizer more economically than any other existing continuous chemical process.

The **Chemical and Industrial Corporation** of Cincinnati, Ohio, has the exclusive rights to the PEC processes in the United States and Canada.

### VENEZUELA

The **Government** has completed negotiations with Montecatini to build a synthetic nitrate plant at Barranca Bermeja. The Montecatini process patents will be made available and technical aid until the plant is operating with local personnel.

For Bagging

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(Chicago Activated Sludge)

"THE ALL-ORGANIC PLANT FOOD WITH THE BUILT-IN CONDITIONER"

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Exclusive Sales Representatives

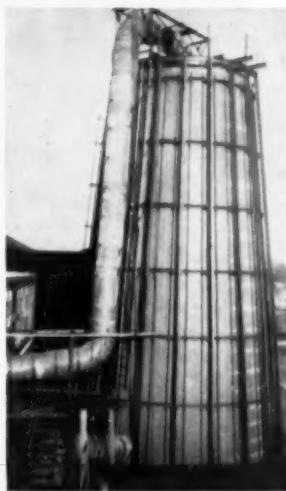
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 of  
**Complete**  
**Acid**  
**Plants**



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**SHUEY & COMPANY, INC.**

Specialty: Analysis of Fertilizer Materials and Phosphate Rock. Official Chemists for Florida Hard Rock Phosphate Export Association. Official Weigher and Sampler for the National Cottonseed Products Association at Savannah; also Official Chemist for National Cottonseed Products Association.

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in Fertilizer Sales?**

What will be the effect of acreage controls? Of diversion of crops? Of lower farm prices? Of stiffer competition?

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**Do You Have A Problem**

—related to future sales, new types of fertilizer, distribution, advertising, selling, or educational programs on which an outside viewpoint, especially that of the consumer, is important? We will be glad to discuss it with you—without obligation. Write for free booklet describing our services. If urgent, wire or phone us. (FOrest 1-2800)

*Market Research Division*

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**AGRICULTURAL SERVICE, Inc.**

Box 784, 5142 Delmar Blvd.  
 ST. LOUIS 8, MISSOURI

786

# MARKETS

## CF STAFF-COMPILED TONNAGE REPORTS

**ORGANICS:** Supplies of fertilizer organics continue short of demand and the producers of Nitrogenous Tankage continue in a completely sold up position for the balance of this season. Some resale lots of Nitrogenous Tankage have sold at above producers' nominal prices which are \$4.15 to \$4.25 per unit of Ammonia, bulk, f.o.b. production points.

**CASTOR POMACE:** Demand continues in excess of supply and prices are nominally \$37.50 per ton f.o.b. Northeastern production point.

**DRIED BLOOD:** The New York market was fairly steady at \$6.75 per unit of Ammonia, unground, in the past week. The Chicago market is around \$7.00/7.25 per unit of Ammonia unground in bags, f.o.b. Chicago.

**POTASH:** Movement is primarily against existing contracts and in increasing volume, as the season expands. Imported Muriate of Potash has been sold in this country at 52½¢ per unit K<sub>2</sub>O, exvessel Atlantic ports, subject to duty, if any, for buyer's account. Results of recent hearings in Washington to determine whether duty is to be applied have not yet been announced. Imported Sulphate of Potash is arriving at various Atlantic ports at 90¢ per unit K<sub>2</sub>O exvessel.

**COTTON BUR ASH (GROUND):** Demand for this source of Potash, primarily in the form of carbonate of Potash continues steady. Material is available for current and future shipment testing 38% to 40% K<sub>2</sub>O and delivers at approximately the same price as domestic Sulphate of Potash.

**PHOSPHATE ROCK:** Supplies continue plentiful and no undue pressure in the way of demand is noted. Prices continue firm and steady.

**SUPERPHOSPHATE:** Certain areas in the Southeast where Superphosphate was in somewhat long position recently, are developing a tightness in supply. Prices continue

### FERTILIZER TONNAGE REPORTS (in equivalent short tons) Compiled by COMMERCIAL FERTILIZER Staff

State	January		December		November 1954	Oct.-Nov.-Dec. Quarter		Year 1953-54
	1955	1954	1954	1953		1954	1953	
Alabama			20,617	17,061	73,310	189,797	83,329	1,087,763
Arkansas	17,565 <sup>1</sup>		10,951 <sup>1</sup>		9,583 <sup>1</sup>	16,471 <sup>1</sup>		366,225
Georgia	68,552	58,467	63,977	45,879	61,457	161,692	149,282	1,361,254
Louisiana	12,299	17,148	11,599	13,016	16,780	42,679	52,914	316,757
Missouri	26,854	33,274	20,816	33,337	15,836	120,579	116,386	756,457
N. Carolina	109,528	113,845	64,846	60,698	47,294	193,088	181,469	1,815,572
Oklahoma	5,538	5,424	2,211	4,870	4,080	28,205	24,289	144,367
S. Carolina	57,129	96,791	30,613	37,329	35,789	92,182	113,269	939,678
Tennessee	5,263	6,873	7,262	8,908	54,382	114,771	64,890	523,300
Texas	31,120	27,403	27,952	30,042	34,036	149,708	106,459	562,530
California					(reports submitted quarterly)	176,395	162,856	830,327
Virginia					(reports submitted quarterly)	81,126	80,225	780,931
Indiana					(reports submitted semi-annually <sup>2</sup> )			1,180,091
New Jersey					(reports submitted annually)			289,614
<b>TOTAL</b>	<b>316,283</b>	<b>359,225</b>	<b>249,893</b>	<b>251,140</b>	<b>342,964</b>	<b>1,350,222</b>	<b>1,135,368</b>	<b>10,954,866</b>

(not yet reported) \* Not compiled. <sup>1</sup> Omitted from column total to allow comparison.  
<sup>2</sup> July-Dec. '54: 285,673 tons; July-Dec. '53: 283,987 tons.

steady. Triple Superphosphate demand continues, placing this material in a tighter supply position.

**AMMONIUM NITRATE:** Supplies continue available for prompt shipment but some producers who have been shipping from stocks are now shipping directly from production. Prices continue firm.

**SULPHATE OF AMMONIA:** Spot supplies are rather freely available but many producers are sold up for future delivery through late June. Demand and supply are in good balance. Prices are steady.

**NITRATE OF SODA:** Stocks are being built up by the producers in anticipation of spring demand and current supplies are adequate for the present needs. It is reported a recent fire at a warehouse in Pensacola, Florida, resulted in the loss of approximately 30,000 tons of Imported Nitrate of Soda. Some of this, of course, may be salvaged.

**GENERAL:** As manufacturers prepare more intensively for the oncoming season, demand for various fertilizer ingredients is rapidly increasing but supplies of most raw

materials appear to be adequate except for possibly organic sources of Nitrogen.

### Atlas Powder Moves Offices

Atlas Powder Company moved its general offices on February 11 from the downtown Delaware Trust Building, where it has occupied space for 34 years, to a new building of its own on a 45-acre tract about three miles from downtown Wilmington.

### New Grab Bucket Crane Bulletin by P&H

In its new 24 page bulletin, P&H treats the many features of grab bucket cranes with large pictures and text. Included are clearance dimensions. The bulletin is departmentalized to show grab bucket cranes in various services, with a spread of pictures showing modern fertilizer plants.

A copy of this new 2-color bulletin may be obtained by writing Harnischfeger Corporation, 4614 West National Avenue, Milwaukee 46, Wisconsin. Ask for Bulletin C9-3.

# FUR-AG

FURFURAL  
RESIDUE



## A Popular Organic Conditioner

FUR-AG is an inexpensive organic conditioner. It speeds up curing in the pile, helps prevent mixed goods from caking, and provides bulk. Heated to 350° F for several hours in the presence of small amounts of steam and acid, FUR-AG is freed from plant diseases, insects, seed, and other similar contaminants. It is being used by leading fertilizer manufacturers. FUR-AG is produced and available in volume the year around. More complete information on request.



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CHEMICALS DEPARTMENT  
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## JEFFREY Transmission Parts for perfect performance



Jeffrey Shaft Couplings: Pin and Belt  
flexible type, flanged, Oldham type.



Jeffrey Set Collars:  
Split or Solid Cast  
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machine faced and  
bored true.



Jeffrey Holdbacks: Friction  
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Lock and Solenoid.

Jeffrey Pillow Blocks: Solid  
or Split Journal, Hollow  
Dowel, Babbitt Anti-  
friction Roller Bearing, var-  
ious flanges.



Jeffrey DS Takeups: Babbitted Bear-  
ing; also Ball, Roller or Bronze Bushed,  
self aligning, positive adjustments.



**THE JEFFREY**

MANUFACTURING CO.

Columbus 16, Ohio

IF IT'S MINED, PROCESSED OR MOVED  
... IT'S A JOB FOR JEFFREY!

sales offices and distributors  
in principal cities

# For High-Nitrogen Fertilizer specify Koppers Ammonium Sulphate

## GOOD COMMERCIAL GRADE

Koppers offers a good commercial grade of ammonium sulphate—the ingredient that is so essential to fertilizer because of its high nitrogen content.

## CHARACTERISTICS

Koppers Ammonium Sulphate comes in crystals with low free-acid and moisture content. The nitrogen content is guaranteed to be not less than 20.5%.

## SHIPMENT

From St. Paul, Minn. and Kearny, N. J., Koppers Ammonium Sulphate is shipped in 100 lb. and 200 lb. bags—also in boxcars and trucks. From Granite City, Ill. and Midland, Pa., it is shipped only in boxcars and trucks.

You'll find that Koppers Company is a dependable source of supply for ammonium sulphate. Get in touch with us concerning your requirements.

## KOPPERS COMPANY, INC.

Tar Products Division

Pittsburgh 19, Pennsylvania



**Coal Chemicals**

# STEDMAN

## FERTILIZER PLANT EQUIPMENT

STEDMAN FOUNDRY & MACHINE COMPANY, INC.

Subsidiary of United Engineering and Foundry Company

General Office & Works: AURORA, INDIANA

Established in 1834

All Steel Self-Contained Fertilizer Mixing and Bagging Units

Batch Mixers — Dry Batching

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Tailings Pulverizers —

Swing Hammer and Cage Type

Dust Weigh Hoppers

Vibrating Screens Acid Weigh Scales

Belt Conveyors —

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Batching Hoppers

Bucket Elevators Hoppers and Chutes

## SULFRAMIN\* AB-40 POWDER

(Dodecyl Benzene Sulfonate)

Preferred by fertilizer manufacturers as a curing and anti-blocking agent.

WAREHOUSE STOCKS

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Ultra Chemical Works, Inc.  
P. O. Box 3150, Dept. CPO, Paterson, N. J.  
Send details on the use of Sulframin  
AB-40 Powder in fertilizer manufacture.



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Specializing

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Ground Cotton Bur Ash, 38/42% K<sub>2</sub>O Potash.

Nitrogenous Materials

Castor Pomace

Urea, 45½% and 46% Nitrogen

Calcium Ammonium Nitrate, 20.5% Nitrogen

Representatives

Morgan Brothers Bag Company, Inc.

Bags—Paper and Textile

Ammoniated Base and Superphosphate

Dolomitic Lime

(42-44% Magnesium Carbonate)

(54/56% Calcium Carbonate)

POTASH

PEOPLES OFFICE BUILDING

Charleston

South Carolina

Phones: 3-4828 and 3-4829

# Steve Turner SELLS WITH Wing-dings

Out in Livingston County, Illinois, Steve Turner has built him a fertilizer business on wing-dings and now a fertilizer plant, complete with fine new Stedman equipment. Steve says there's nothing unusual about it, really—it's what might be considered a neighborhood plant, moving toward bulk distribution on more or less a prescription basis.

"If we have made any particular contribution to the business in general" says Steve, "it is in public relations, or more specifically, the creation of new demand for fertilizer."

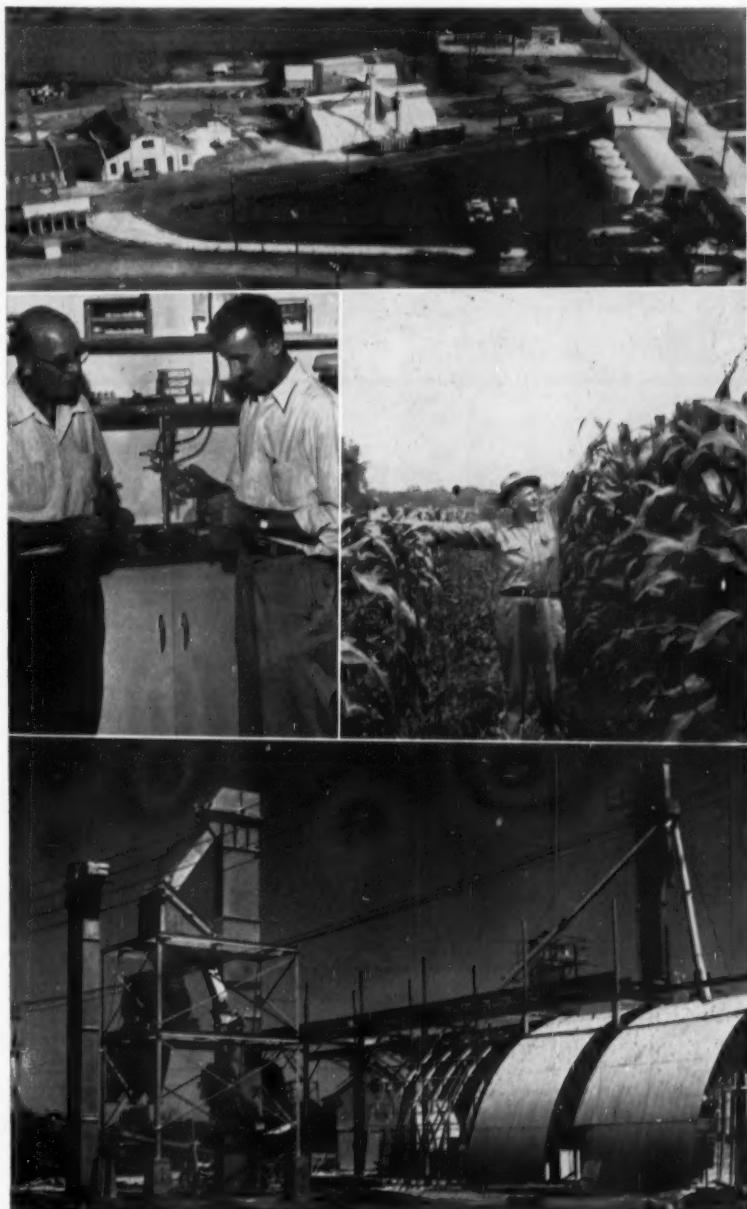
And that is where the wing-ding comes in.

As our readers may know, because we have mentioned Steve's Pacemaker Clubs in the past, he operates in a small county which had used virtually no soluble plant foods . . . very little commercial nitrogen, superphosphate or potash, and has, as he puts it, "struggled for 40 years under a system of limestone and raw rock phosphate."

To give you some small idea of results from a sales standpoint (remembering this is a new fertilizer territory and a small county, and Steve makes no pretence at being a big operator) they last year mixed and spread with their "New Leader" equipment more than 2000 tons of soluble plant foods in 50 days during October and November. Says Steve about that, "This is no sizable volume in the regular fertilizer sense, but when it is considered as virtually all new demand in a small county area, it is of greater significance."

The cornerstone of the Turner operation is the Pacemaker Club, which has turned into the plural of late. It began a while back as a meeting with refreshments and entertainment but featuring top flight agronomists to talk to the Livingston County farmers. No minor characters for Steve—he went to the very

1. Steve Turner's new plant, seen from the air. 2. Steve and his busy agronomists, Dr. Jerome C. Lyons. 3. Before and after using, graphically demonstrated in the field. 4. A close-up of the new Turner plant during construction.



## Introducing . . . the "CESS" Electro-Selecta — Cunningham's NEW Electronic Selector Check Scale

- Inserted into conveyor line from bagging unit, this device separates underweight and overweight bags from main line of accurately-filled bags—does not permit an inaccurately-weighed bag to continue on conveyor line to shipment or storage.
- Electro-mechanically sorts—at 20 to 25 bags per minute—bags or parcels from 25 to 200 pounds, with error tolerance adjustable from 2 ounces to 2 pounds. Underweight bags are shunted off main conveyor to gravity conveyor at one side, overweight bags to another on the opposite side.
- Electronic selector check scale features positive protection from outside contamination through well-known friction-free liquid scale seal—obtainable only from Cunningham Scale Seal, a product of the same manufacture.



**CUNNINGHAM**  
**ELECTRONIC SELECTING**  
**CHECK SCALES**

2213 Tubman Home Rd. AUGUSTA, GA. Phone: 2-5504

best in his region, and got them up on his platform.

The keynote: "Is it possible; is it practical; is it profitable to raise 100 bushels of corn per acre in Livingston County?" Howard Lathrop, Nitrogen Division, widely known as "Mr. Nitrogen" keynoted the first meeting—and a whole series of them followed, and built up what turned out to be an organization.

The plan was and is to set up clubs of 50 to 100 farmers in various sections. Each farmer selects a test field and applies plant food according to the recommendations of the University and local committees. Steve pointed out to them that over in Wisconsin 765 farmers, during the bad drought year, averaged 102 bushels of corn per measured acre. And "what Wisconsin farmers can do, we can do in Livingston County."

As of last Fall the Pacemaker idea had demonstrated itself pretty well. 90 Livingston County farmers had raised test plots of from 5 to 80 acres

each. Average previous yield on those acres had been 69.25 bushels per acre. Under the Pacemaker program of plant food recommendations the ninety farmers averaged 105.2—thereby proving that Livingston County could not only equal, but could beat Wisconsin neighbors.

The structure of the Pacemaker organization is interesting because it pulls the entire community into the operation. There are 23 communities in the program scope. A county-wide committee composed of the president of the County Bankers Association, president of the Soil Conservation Service, a leading farm manager, a leading farm elevator manager and the County agricultural agent was the driving force.

This group appointed a chairman for each of the 23 communities who in turn set up a local sponsoring committee of 5, representing the economic interests of the community—banker, merchant etc. And each sponsoring group asked 4 farmers to cooperate in the 100-bushel effort.

Regular monthly meetings were held with the committeemen and the cooperating farmers, with top speakers each month: Dr. Kermit Berger, University of Wisconsin; Dr. Ed Tyner, University of Illinois; Dr. George Hoffer, Potash Institute; Dr. M. B. Russell, University of Illinois to name a few. Local tours were held. And never have there been fewer than 150 at a monthly meeting.

Dr. Jerome C. Lyons, Turner's busy agronomist, who played a big part in coordinating all this activity, has made a report on field performance that can be of interest to fertilizer people in the corn regions. It breaks down and analyzes the performance in the test plot, in terms of the years planted, the field population, the weather conditions involved and the like, which Dr. Lyons will doubtless gladly send to members of the industry on request, written to him at Steve Turner, Pontiac, Illinois.

# Crop Chemicals...

## True Morse Tops Speakers At NAC Meet

Under Secretary of Agriculture, True D. Morse, will be the principal speaker at the annual spring meeting of the National Agricultural Chemicals Association, to be held at the Hotel Chase in St. Louis, Missouri, on March 7, 8, and 9. "Better Farming with Agricultural Chemicals" is the theme of the convention, which will be attended by an estimated 300 representatives from this \$400,000,000 industry.

Lea S. Hitchner, executive secretary of the Association said the meeting will gather leading scientists, farm representatives, government officials, and manufacturers of agricultural chemicals, who will take a particularly sharp look at the rapidly growing fields of herbicides and soil insecticides.

One of the chief concerns of the Association today is the Miller Bill and the effect of this legislation on future research will be carefully studied.

In addition to Mr. Morse, the chief speakers on the program will be: Fred Heinkel (President of Missouri Farmers Association, Inc.), W. W. Allen (President of the National Ag-

ricultural Chemicals Association), Professor Donald A. Wilbur (Kansas State College), John L. Gillis (Vice-President, Monsanto Chemical Co.) and Lea S. Hitchner.

On a panel discussing herbicides will be Dr. A. E. Carlson (E. I. DuPont de Nemours), Dr. M. W. Parker (U. S. Department of Agriculture), Dr. Lloyd Sherwood (Monsanto Chemical Co.), Mr. Hillard L. Smith (The Dow Chemical Co.), and Professor R. D. Sweet (Cornell University).

The relatively new field of soil insecticides will be explored by Dr. O. N. Allen (University of Wisconsin), Dr. Charles C. Compton (Shell Chemical Co.), Professor George W. Decker (University of Illinois), and Professor John H. Lilly (Iowa State College).

A panel on the Miller Bill, will include Winton B. Rankin (Food and Drug Administration), Dr. W. G. Reed (U. S. Department of Agriculture), John D. Conner (Association counsel), and Joseph A. Noone (Association technical adviser). Mr. Hitchner will be the moderator.

## Predicts Billion Saved by Antibiotics

Recent triumphs of antibiotic drugs over devastating plant diseases have raised the hope that the \$2,000,000,000 a year damage caused by these diseases may be cut in half through the proper use of chemicals.

This encouraging prospect is advanced by Dr. William J. Zaumeyer of the United States Department of Agriculture.

The development of streptomycin and cycloheximide, for farm use, has already reached the commercial stage, points out Dr. Zaumeyer.

Agrimycin, made by Chas. Pfizer & Co., Inc., Brooklyn, N. Y., and Agristrep, produced by Merck & Co., Inc., Rahway, N. J.—are on the market. The third antibiotic preparation on the market is cycloheximide—Actidione, made by The Upjohn Company, Kalamazoo, Mich.—which is recommended for the control of fungus diseases.

## Fungicides Fight Smog

Both laboratory and field tests have disclosed that certain organic fungicides can protect plants from smog damage.

Bean plants dusted with zincb (zinc ethylene bisdithiocarbamate) and thiram (tetra methyl thiram disulfide) suffered little or no damage during recent smog sieges in Southern California.

This was disclosed by Dr. James B. Kendrick, University of California plant pathologist, who said that unprotected plants in the same plot showed typical leaf damage.

## Amino Triazole Solves Cotton Problem

A chemical called "amino triazole" has come into the cotton picture. When added to already-established brands of defoliants, it may limit second growth for three to six weeks. In most cases, it also gives faster and more complete leaf shed, according to the National Cotton Council.

Amino triazole was tested on a small scale in 1953, and on a large scale in 1954, at experiment stations across the Cotton Belt. Except for California, where it seems to take too much of the chemical to produce desired results, the material looks very promising. It will be commercially available to cotton growers prior to the 1955 harvesting season.

## Phosphorous Insecticides Noted by USDA

A pair of new, experimental organic phosphorous insecticides is said have provided remarkable control of several cotton insect pests in preliminary tests conducted by the Texas Agricultural Experiment Station and the U. S. Department of Agriculture.

Chemically the materials are: (1) benzol triazine derivative of a dithiophosphoric acid ethyl ester, and (2) benzol triazine derivative of a dithiophosphoric acid methyl ester. The first has been designated 16259 and the second 17147.

In laboratory tests at College Station, Tex., compound 17147 provided 100 per cent kills of the boll weevil at spray rates as low as 1/4 pound per acre. Compound 16259 provided similar complete control at a 1/2

# CAL-MAG OXIDES

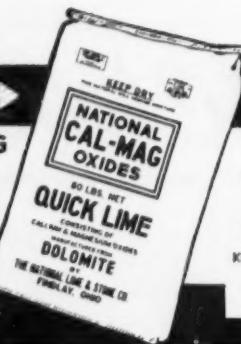
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pound per acre rate. In field cage tests, 16259 at a 1-pound per acre rate provided complete boll-weevil control when applied in June and 96 per cent control when applied in October, when the insects are harder to kill. At 2 pounds per acre, toxaphene, a standard remedy, provided 66 per cent weevil control in June; 54 per cent in October.

### Pacific Borax Introduces Ureabor

The Pacific Coast Borax Co. has introduced Ureabor, a new weed and grass killer developed specifically for industry. Ureabor, a complex of sodium borates and 3-p-chlorophenyl 1-1, dimethylurea, has been extensively tested throughout the United States. No mixing or spraying equipment is required for the new product which is applied dry. It will be marketed by the company's Agricultural Sales Division.

### Stauffer Offers New Soil Fumigant

Vapam, a new and unique agricultural pesticide, has just been announced by Stauffer Chemical Company. Consisting of Sodium N-methyl dithiocarbamate, this product has been field tested during the past two years as Compound N-869.

A general purpose soil fumigant, VAPAM controls practically all types of soil-borne diseases, nematodes, growing weeds and weed seeds, as well as certain species of soil infesting insects and related pests. Although especially suitable for seed bed treatment, Vapam also shows promise for a wide range of soil problems confronting farmers, nurserymen, and home gardeners.

Vapam 4S, the formulation which will be offered for sale under experimental permit, consists of a four pound per gallon solution. It will be supplied on a gratis basis to qualified investigators. Descriptive literature is available from the Stauffer Chemical Company, Research Dept., 1496 East Fremont Road, Mountain View, California, or Chauncey, New York, or from Stauffer's agricultural sales offices throughout the United States.

### New Geigy Plant Opens In Des Moines

New automation equipment and dual production area of the \$500,000 Des Moines agricultural chemical plant of Geigy Chemical Corporation was on display recently when the firm held its official opening. Over 300 attended the open house despite high winds and below-zero temperatures.

The automation equipment occupies both wings of the 35,000 sq. ft. factory. One wing is devoted to insecticide formulations, the other to weed killers, and both wings are separated by a center section housing an office, control laboratory, employee shower and lunch room. Employees passing from one wing to the other are required to wash and change clothing to prevent contamination.

Recent developments of the firm's Agricultural Chemical division are Diazinon, a fly killer effective on resistant flies; Sequestrene, for correcting iron deficiency in soils; and Chlorobenzilate, a miticide. All will be produced at the Des Moines plant, 3525 Vandalia Road.

Among the Geigy officials attending were William F. Zipse, president

of Geigy Chemical Corp., New York; R. T. Parker, vice president; Dr. G. R. Ferguson, president of the Geigy Agricultural Chemical division, and his director of research, C. C. Alexander; W. R. Ross, director of traffic; John Plowden, sales manager; Lou Harris, production manager; Merrill Bunnell, secretary; and A. M. Alexander, treasurer's department.

### Miller Develops Fly Bait

Miller Chemical & Fertilizer Corporation has developed a dry granular bait, called Hy-Tox Fly Bait, that attracts and kills flies, including "resistant" strains. Approximately 3 ounces sprinkled on the ground effectively control flies in a 100 sq. ft. area.

The active ingredient is Malathion, impregnated into a granular carrier in combination with "fly attractors" which will draw flies from a distance of 100 ft. on a calm day.

Literature and further information is available by writing to Miller Chemical & Fertilizer Corporation, 2226 North Howard Street, Baltimore 18, Maryland.

### AAI Head Predicts Doubled Market

Jack F. Criswell, executive vice president of the Agricultural Ammonia Institute, predicted in an address before the Arkansas Agricultural Ammonia Dealers Association in Little Rock on Feb. 7 that the farm market for synthetic nitrogen is large enough to use more than double present production by Jan. 1, 1957.

According to Mr. Criswell, anhydrous ammonia plants in operation, under construction, and proposed will help meet a national nitrogen goal of 3,500,000 tons by Jan. 1, 1957.

During the fertilizer year ending June 30, 1954, the nation's farmers used 1,637,000 tons of nitrogen.

In forecasting the tremendous increase in consumption of nitrogen fertilizer, Mr. Criswell traced the already remarkable acceptance of agricultural ammonia.

He said that consumption of fertilizer nitrogen jumped from 62,000 short tons in 1900 to the 1,637,000 ton level for 1954.

"There are many who feel that the 2,000,000 ton mark will be reached in 1956, and a few who predict such a goal in even less time," he said.

He recalled that in 1950, four years after commercial acceptance of anhydrous ammonia for direct application, only 6 per cent of the nation's fertilizer nitrogen was put down as anhydrous ammonia. By 1954, he said that percentage climbed to 20 which was some 333,000 tons.

The Agricultural Ammonia Institute official predicted that agricultural ammonia distribution would become more competitive and that close customer relations based on "both friendship and business ethics" will play a more important role in the future.

# CONTROL WEEDS AND TOP-DRESS IN ONE OPERATION

W. G. WESTMORELAND AND G. C. KLINGMAN<sup>2</sup>

Agronomy Dept., N. C. State College, Raleigh, North Carolina

Work at N. C. State College has indicated that a mixture of solution nitrogen,<sup>1</sup> a wetting agent (detergent) and 2, 4-D may serve both as a weed killer and as a fertilizer for corn. The spray mixture is applied to the base of the corn plant after the corn is knee-high. This information is offered as a preliminary report. Additional research work is needed before specific recommendations can be made.

The mixture is extremely toxic to green plant parts, killing upon contact. The base of the corn stalk is tolerant to the spray, the leaves are easily killed. Therefore, the weeds must be small compared to the size of the corn to permit spraying the weeds without hitting the corn leaves. Early weed control can be provided by cultivation or preemergence sprays.

Nitrogen is needed in North Carolina as a top-dressing on corn. There appears to be no loss of fertilizing effect even though the nitrogen was applied as a surface spray.

At the present time the following is suggested for those wanting to try the procedure on a small scale.

1. Obtain good early weed control by present accepted methods until the corn is about 12 inches tall. Use of the rotary weeder, cultivator, or 2, 4-D application is suggested depending upon proven reliability of each method on your soils. One thorough cultivation is suggested when the corn is 10-12 inches tall; especially on soils that bake and become hard.

2. Apply 40 to 60 lbs. of nitrogen<sup>1</sup> per acre to the base of the corn and to the middles when the corn is about 18 inches tall. Good results have resulted by using one wide-angle whirljet nozzle set at a 45° angle in each middle. Add to the nitrogen solution 1/3 pound of synthetic detergent and 1/8 to 1/4 pound (acid

equiv.) of a low volatile ester of 2, 4-D per acre per application. The wetting agent should be thoroughly mixed.

3. Repeat treatment 2 above 2-10 days later. This timing will control those weeds missed by the first spray.

<sup>1</sup> Water solution of ammonium nitrate containing 2.26 pounds of nitrogen per gallon. Such solutions are commercially available. To apply 40 pounds of nitrogen per acre, apply 17.7 gallons of the above nitrogen solution per acre.

If you desire to make up your own solution for small scale trial, dissolve 6.75 pounds of solid ammonium nitrate (33%) in enough water to make up to 1 gallon of solution. Allow several hours (above 60° F) with occasional stirring to gain complete solution. Let stand for 30 minutes. Pour clear nitrogen solution from the inert ingredients that settle out.

The spray is corrosive to brass, tin, galvanized and black iron. Most plastics, rubber, aluminum and stainless steel are resistant to the nitrogen solution.

<sup>2</sup> Extension Weed Specialist and Professor of Agronomy, respectively, Agronomy Department, N. C. State College, Raleigh, North Carolina.

## OBITUARIES

**Charles Austin**, 41, superintendent, Armour Fertilizer Sandusky plant, January 8 of burns and acid fume inhalation.

**Clyde K. Beale**, 49, editor Florida AES, February 1 of a heart attack.

**William K. Jackson, Jr.**, 44, Union

Bag and Paper, died suddenly in New York January 25.

**Mrs. J. E. Moses Sr.** wife of the head of Cotton Producers Association, Atlanta, January 29 in Atlanta.

**Ed Stevens**, 67, board chairman of Dawson Cotton Oil Co., Dawson, Georgia, and of the Stevens Industries, from self-inflicted gunshot wounds, following a long period of ill health.

The Atlanta (Ga.) branch office of Union Special Machine Company, Chicago, has completed its move into new quarters at 81 Peachtree Place, N. W. The new building which now houses this office incorporates the latest in modern and functional layout. It is built along simple lines, has two levels, is air conditioned, and is provided with a parking lot in the rear for employees and customers.

The office and parts department are located on the ground floor. The storage and repair departments are on the second floor and a complete stock of machines as well as accessory equipment can be carried in the storage room. A truck-level shipping dock has been built on to the back of the building and opens into the storage room for simplified handling of shipments. Continued growth in this area led to the building of this new office with increased facilities.



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**on wheat . . .** Yields are boosted from 6 to 10 bushels per acre with early spring top dressings of nitrogen.

**on corn . . .** Since corn requires 2 to 3 pounds of actual nitrogen per bushel, supplemental nitrogen is essential for profitable yields. Broadcast and plow down with USS Ammonium Sulphate is the best way to get that nitrogen deep into the root zone where it will do the most good. Nitrogen strengthens plants for maximum dry-weather stamina.

An important feature of the present widespread nitrogen promotion is *earlier* application. That means that all your dealers must be well stocked as soon as possible.

But don't forget that late winter or early spring high-nitrogen top dressing or broadcast and plow down calls for nitrogen in the non-leaching Ammonia form. So to give your customers top nitrogen value, sell them USS Ammonium Sulphate—both in your mixed fertilizers and for direct application.

USS Ammonium Sulphate is an easy mixer. It is carefully kiln-dried so that it stays free-flowing. It's available in moistureproof, easy-to-handle bags or in bulk quantities for mixing. Order your supply of USS Ammonium Sulphate *now* so that you can be sure of quickest delivery. Don't be caught with your stocks down when the big orders are coming.

# USS AMMONIUM SULPHATE



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NEW S-D NUTRO PRODUCTS

## SMITH-DOUGLASS INTRODUCES NEW "NUTRO" PELLETIZED GOODS

A completely new kind of plant food, Nutro Plant Food Pellets, was introduced during February throughout Southeastern United States by the Smith-Douglass Co. TRO (rhymes with **U** Grow) is a complete plant food in a pellet form. The chief difference between NUTRO and conventional fertilizers, being that NUTRO is pelletized and homogenized.

The shotlike pellets are clean, dustless, and odorless, and says it was formulated with the home gardener in mind. Large areas, including lawns, can be fertilized quickly by hand, or by using a spreader. It is not necessary to rake or wash off the plant food to prevent foliage burn since the pellets bounce off the leaf to the ground.

Packaged in 10, 25, 50 and 100 pound bags, NUTRO supplies a balanced, even feeding of primary plant foods which are needed for sod and turf building on lawns, and for healthy vigorous growth of flowers.

Like coffee, NUTRO can be purchased in two forms, regular or instant. INSTANT NUTRO dissolves in water, and can be used for foliage as well as root feeding. In liquid form, it can be sprinkled on leaves for foliage feeding, poured around the roots as a starter when setting out plants, or sprayed on large areas of lawn for a quick feeding of grass. Unlike other water soluble plant foods, INSTANT NUTRO also can be used in dry form. NUTRO Plant Food Pellets and INSTANT NUTRO,

the soluble form, can be kept in storage indefinitely, anywhere about a house, say Smith-Douglass officials. Neither product will absorb moisture from the air, and consequently will not harden in the bag.

Third member of the NUTRO family is NUTRONITE, an all organic fertilizer guaranteed 9% nitrogen, 90% or better water insoluble. NUTRONITE is advertised as "the fertilizer that makes the golf greens green." This product, 100% organic, is made from animal waste, not a garbage or sewage sludge.

### Blaw-Knox Enlarges Equipment Division

Blaw-Knox Company's Process Equipment Department, formerly at Pittsburgh, Pa., is being integrated into an enlarged and modernized Buflovak Equipment Division at Buffalo, N. Y. In announcing the project, James P. Beyser, vice president and general manager of Buflovak, said: "This consolidation, together with improvements to our facilities, constitutes one of the first phases of a \$15 million modernization program recently begun by Blaw-Knox Company.

"Speaking of the Buflovak improvement, W. Cordes Snyder, Jr., Blaw-Knox president, said, 'Our purpose is to establish Buflovak as the most fully modern facility in its field, and with sufficiently broadened scope to serve the growth needs of the process industries with an extensive, unmatched line of process equipment.'



Pictured here is the new Electronic Selector Checking Scale produced by Cunningham Scale Seal Manufacturing, Augusta Ga. Conceived and developed jointly by James L. Cunningham and James L. Cunningham, Jr., the device is designed to couple into the conveyor from the bagging unit, sorting out underweight and overweight bags from bags which meet the pre-established requirements. Speed of operation, synchronized with the bagging unit, can run as high as 25 bags per minute. This check scale can be used to handle bags filled to any weight from 25 pounds to 200 pounds; it features an adjustable error tolerance varying from 2 ounces to 2 pounds and off-weight limit can be set anywhere within this range for activating re-setting of bags exceeding this tolerance. By means of a turntable drive mounted on a sealed scale set into the bagging unit discharge conveyor, the device instantly determines whether a bag exceeds the established tolerance and shunts under-filled bags to a separate conveyor running off one side of the main conveyor while over-filled bags are routed to a different conveyor running off the other side of the main line. Bags falling within the properly-weighed classification continue straight along the main conveyor to the plant shipping or storage section. Complete information and photographs are available from Cunningham Scale Seal Manufacturing, 2213 Tubman Home Rd., Augusta, Ga.

### Chemicals Handling & Storage Brochure by Sauerman

The second in the series of brochures under the general heading of Materials, Machines & Motions has just been released by Sauerman Bros., Inc. The new booklet is titled, "Chemicals—Handling and Storage."

It describes Sauerman Storage Machines in use at a variety of installations in the plant food industry, and contains many layout drawings and photos that will be of interest to anyone with a materials handling problem.

The brochure shows how Sauerman Engineers develop storage systems to meet the needs of the bulk chemicals industry and work with consulting engineers and plant designers to fit scraper storage into the building plans.

Basic chemicals and corrosion are discussed briefly. Sauerman scraper storage is especially designed to handle corrosive materials with the minimum of contact and in many cases, no personnel need enter the storage area. Ask for this booklet by number: MMM No. 2, Sauerman Bros., Inc., Dept. A-3, 620 S. 28th Avenue, Bellwood, Illinois.

# CLASSIFIED ADVERTISING

For Sale, Exchange and Wanted Advertisements, same type now used, EIGHT CENTS a word for one insertion; TWELVE CENTS a word for two insertions; FIFTEEN CENTS a word for three insertions, and FOUR CENTS a word for each insertion more than three; ADVERTISEMENTS FOR THIS COLUMN MUST BE PAID IN ADVANCE.

**WANTED:** Position by married man. Thoroughly experienced in every phase of the operation of dry mix or complete fertilizer plants. Reference furnished. Available at once. What do you have to offer? Box #12, c/o Commercial Fertilizer, 75—3rd St., NW Atlanta, Ga.

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**SITUATION WANTED:** Production Manager—Thoroughly experienced in granulation, acidulation, shipping, maintenance, purchasing, and personnel. Age 35, Married. Presently employed but desire change. Box #13, Commercial Fertilizer, 75—3rd St., N.W., Atlanta, Ga.

## Cunningham To Market Scale Seal Exclusively

Cunningham Scale Seal Manufacturing, Augusta, Ga., and Applied Engineering Company, Orangeburg, S. C., have jointly announced the termination of the arrangement under which Applied Engineering Company manufactured and sold the Cunningham Scale Seal.

The friction-free liquid scale seal, designed to prevent contamination and damage of weighing devices through leakage of dust and corrosive materials into the mechanism, will hereafter be produced and marketed by Cunningham Scale Seal Manufacturing, 2213 Tubman Home Road, Augusta, Georgia.

## Millmaster Offers Working Samples

Millmaster Chemical Corporation, as eastern sales agent for S. W. Shat-

tuck Chemical Company, Denver, Colo., is now offering working samples of sodium molybdate for use as an agricultural chemical. Molybdenum first proved its worth to agriculture in Australia and New Zealand where large acreages of cropland, formerly too poor to warrant treatment with fertilizers or other agricultural chemicals, provided a major new market for their products by the application of molybdenum.

For your working sample of sodium molybdate, write to Millmaster Chemical Corporation, 11 West 42nd Street, New York 36, N. Y.

# BOOKS

**Commercial Fertilizers**, by Dr. Gilbeart H. Collings; published by Mc-

Graw Hill Book Company, Inc. New York City; \$5.00.

This is the Fifth Edition of Dr. Collings work, originally copyright in 1938. It is a standard treatise on the sources and uses of fertilizer raw materials, and the production and use of mixed fertilizers. The current edition includes much new material which reflects the development of the industry's technology, as well as the new practices which have appeared on the farm.

A phase of importance to everyone who sells as well as makes fertilizer is the data on plant life—knowledge only recently revealed by new research methods and equipment.

If the previous editions have been in your plant library, the new one belongs there. Dr. Collings book is one that belongs in every fertilizer plant and in every sales office of the entire industry.

## THIRD ANNUAL CALIFORNIA CONFERENCE APRIL 26

The Soil Improvement Committee of the California Fertilizer Association will hold the Third Annual California Fertilizer Conference on the campus of the University of California, College of Agriculture, at Davis, California, Tuesday, April 26, 1955. The University of California is lending its full cooperation in contributing to the program as well as providing facilities for the conference. The Committee states that the program will be of interest to fertilizer industry management, salesmen, dealers, farmers, official workers and all others interested in soil fertility. An invitation is extended to all to attend. There will be no registration fee.

J. H. (Hank) Nelson, Stockton, Conference chairman, reports that the program will have to do with four major California crop classifications: Pasture and forage, vegetables, deciduous and citrus fruits, and field crops. The morning session will be held in the Chemical Auditorium and will feature reports to all delegates on subjects of general interest and will witness the showing of the new motion picture "California Grows with

Fertilizer," which was produced jointly by the Association's Soil Improvement Committee and the National Fertilizer Association.

The afternoon will be given over to four separate panel discussions each devoted to one of the above crop classifications, with qualified persons from industry and the University participating. A speaker of national reputation is promised for the banquet to be held in the Rodeo Room, Hotel El Rancho, West Sacramento, in the evening.

The annual joint meeting of the University of California Fertilizer Committee, of which Dr. Louis B. Proebsting, Davis, is chairman, and the Soil Improvement Committee of the California Fertilizer Association under the leadership of Millard E. McCollam, San Jose, will be held at breakfast on Wednesday, April 27, at the college campus dining hall.

Nelson has announced that overnight accommodations can be arranged through the University for rooms in the dormitory on the campus, or can be arranged individually at any of Sacramento's hotels or motels.

## LOCAL LEVEL ASSOCIATIONS

### Alabama Soil Fertility Society

Recently organized, the Alabama Soil Fertility Society has become a very active group from the start. Recently they have issued a query to their membership concerning six potential programs to be followed, asking for comment.

### Oklahoma P.F.A. Stages Wheat Contest

The Oklahoma Plant Food Association is still driving hard for new members, and solidly backing its 4-H and FFA Wheat Fertilizer Production Contest.

### Nebraska Fertilizer Institute Elects

Another new local level group is the Nebraska Fertilizer Institute which has elected officers and directors: President, Howard Peterson, vice-president, Dick Bennett; treasurer, George Spidel; directors E. E. Barrett, Jerry Mitchell, Stuart Daniels, Frank Brady, Nel Beerman.

### NFA Plant Food Research Committee

#### OFFICERS\*

General Chairman, George V. Taylor; Vice Chairman, Borden S. Chronister; Co-Secretary, Malcolm H. McVickar; Co-Secretary, Edwin C. Kapusta.

#### CROP PRODUCTION DIVISION

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\*The Executive Committee is composed of General Officers and the Chairmen of the various Sections.

### Coming Safety Meetings

May 19—Winston Salem, North Carolina—Fertilizer Section, 25th Annual North Carolina Safety Conference (Robert E. Lee Hotel) William C. Creel, Safety Director, Department of Labor, State of North Carolina, Raleigh, North Carolina, Chairman.

June 3—Richmond, Virginia—Fertilizer Section, Virginia State Safety Association (Jefferson Hotel) William C. Richardson, Southern States Cooperative, Richmond, Virginia, Chairman.

October 17-18—Chicago, Illinois—Fertilizer Section, National Safety Congress, (LaSalle Hotel) Thomas J. Clarke, Chairman.



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Coupled with a complete line of equipment is Union Special's vast background of experience and technical know-how that insures customers of getting **THE RIGHT MACHINE FOR THE JOB!**

Union Special representatives located in all leading industrial centers are qualified by experience and training to give you expert recommendations. Take advantage of the service they offer.

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**BAG CLOSING  
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**CLASS 21800** (left) for fast, economical closing of paper bags. Illustrated is Style 21800 H with 8 ft. conveyor and 80600 H sewing head for making tape bound closure. Tape is cut off automatically at each end of closure. Sewing head and conveyor adjustable vertically.

**CLASS 20500** (above) machines are heavy duty, high production units for closing medium and heavy weight bags. Available with power-driven horizontal conveyor, inclined conveyor, or both; or with conveyor transmission unit only, for plant production line.

**STYLE 20100 H** (left), is a heavy duty, high production column type machine designed for use with plant conveyor systems. Sewing head is pedal controlled.

**DUPLEX MACHINES** (right) are designed for closing double bags. The first sewing head closes the inner bag; the second closes either the outer bag alone, or both bags together for extra safety. Also recommended for single closures where continuous operation is a must—operator can instantly switch to either head.